PANTHER™

2–Tier Installation

Prolifics®

April 1999

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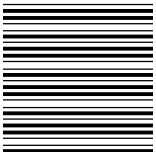

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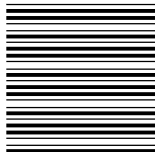


About this Guide

The *Installation Guide* contains complete instructions for installing Panther and for setting up the initial configuration on machines for the supported platforms. It also discusses system requirements, contents of the installation package, licensing, and linking in databases.

The guide assumes that the person doing the installation is a system administrator or someone familiar with UNIX and Windows operating systems.

Organization of this Guide

This guide includes the following information:

- Pre-installation information — An overview of application architectures, the Prolifics components which make up Panther, and requirements and procedures necessary to install Panther.
- Installation instructions — Installing Prolifics software components on UNIX and Windows systems.
- Post-installation notes — Instructions on verifying installation and configuration, how to install the licensing software, creating new Prolifics executables for your installation, and information about sample applications distributed with Panther.

In addition, appendices provide information on modifications you can make to the distributed initialization files, background information on licensing including license utility programs, and the format and content of the password-enabled license file.

Conventions

The following typographical and terminological conventions are used in this guide:

Text Conventions

`expression` Monospace (fixed-spaced) text is used to indicate:

- Code examples.
- Words you're instructed to type exactly as indicated.
- Filenames, directories, library functions, and utilities.
- Error and status messages.

`KEYWORDS` Uppercase, fixed-space font is used to indicate:

- SQL keywords.
- Mnemonics or Prolifics constants.

numeric_value Italicized helvetica is used to indicate placeholders for information you supply.

[option_list] Items inside square brackets are optional.

`{x | y}` One of the items listed inside curly braces needs to be selected.

x ... Ellipses indicate that you can specify one or more items, or that an element can be repeated.

new terms Italicized text is used:

- To indicate defined terms when used for the first time in the guide.
- Occasionally for emphasis.

Keyboard Conventions

XMIT Prolifics logical keys are indicated with uppercase characters.

Alt+A	Physical keys are indicated with initial capitalization, and keys that you press simultaneously are connected with a plus sign.

Panther Documentation

The Panther documentation set includes the following guides and reference material (available as indicated), as illustrated in Figure NO TAG:

Installation — Instructions for installing software and licensing for Panther products in the following books: *JetNet Installation*, *TUXEDO Installation*, *MTS Installation*, *WebLogic Enterprise Installation*, and *2-Tier Installation*.

New Features Guide — Information about new features in Panther, including Java support, enhanced three-tier and web functionality, new properties, new library functions, and, for Windows 32–bit platforms, tab controls and dockable toolbars.

Upgrade Guide — Information for upgrading from JAM to Panther.

Getting Started — Introduction to the Prolifics products and the tutorial, with step-by-step instructions that help you get started with understanding, setting up and developing either a two- or three-tier Prolifics application.

Developer's Guide — Introduction and process of how to use Prolifics to build two- and three-tier Prolifics database applications. As the major developer's manual, it includes information for each step of the development path.

Web Developer's Guide — Introduction and process of how to build and deploy a Prolifics web application.

Using the Editors — Instructions for using the Prolifics graphical authoring environment—the screen editor, screen and report wizards, JIF editor, menu bar editor, and styles editor—to build two- and three-tier applications.

Programming Guide — Describes JPL, Prolifics's scripting language, and Prolifics's Java programming interface. Also includes alphabetical listings of JPL commands, built-in functions, Prolifics's library functions, transaction manager commands, and database commands and variables.

Reports — Instructions for using Prolifics's report generation utility to build, modify and run reports.

JDB — Instructions for using JDB, Prolifics's prototyping database, and JISQL, the interactive SQL editor for JDB. Also describes how to build SQL statements and the SQL commands available in JDB.

Database Drivers — Instructions for using Prolifics's database drivers. Each driver has its own section containing the information specific to that relational database engine.

Configuration — Instructions for configuring Prolifics on various platforms and to your preferences. Also includes information on GUI resource and initialization files.

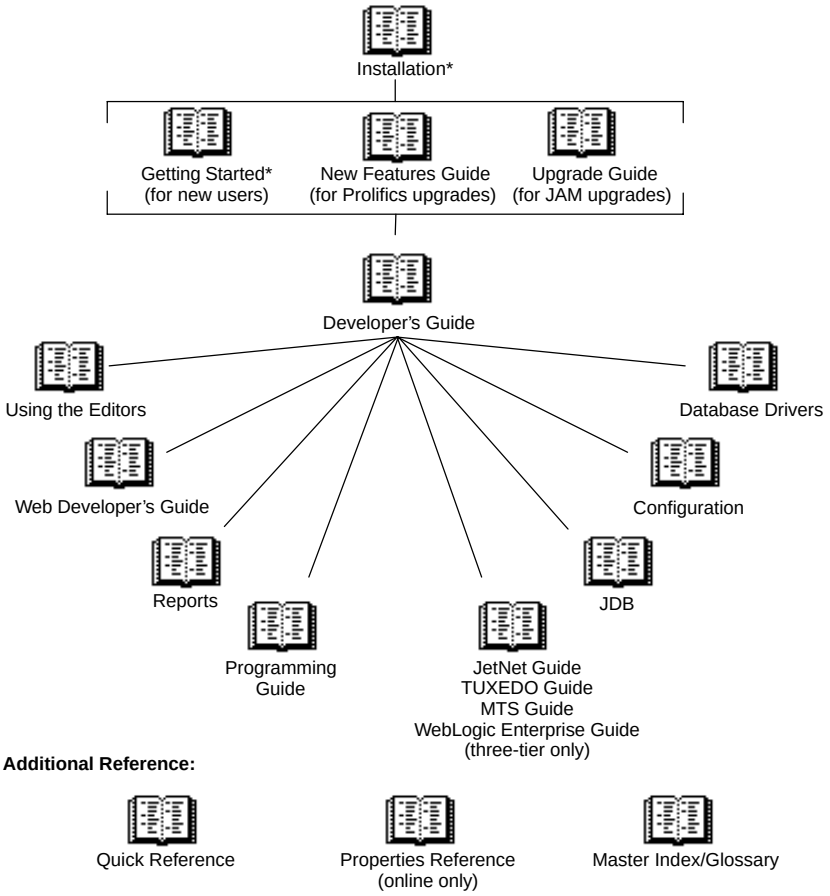


Figure 1. A suggested reading path for the Panther documentation set. An asterisk (*) indicates that there are multiple versions of the book for different environments.

JetNet Guide — Instructions for configuring and monitoring your Prolifics three-tier JetNet application.

TUXEDO Guide — Instructions for configuring and monitoring your Prolifics three-tier TUXEDO application.

MTS Guide — Instructions for building and deploying COM components in your Prolifics three-tier application.

WebLogic Enterprise Guide — Instructions for building and deploying WebLogic Enterprise components in your Prolifics three-tier application.

Quick Reference — Easy reference to all Prolifics properties and definitions associated with application objects. Also includes quick reference to database and transaction manager commands, library functions, JPL commands, Prolifics development utilities, and application variables.

Master Index/Glossary — Master index for all manuals—online and printed. Also a reference to terms used throughout the documentation set.

Online Documentation

Panther's documentation set is available online and included with the Panther distribution. The books can be viewed through the *Dyna*Text™ browser on GUI platforms. To access the books, choose Help from within Prolifics or run *Dyna*Text's read-only browser by clicking on the *Dyna*Text icon or typing `dtext` at the command line. For instructions on using *Dyna*Text, choose Help from within a *Dyna*Text browser window, or refer to the *Using DynaText* title in the Collection window.

Using DynaText

*Dyna*Text is a full-featured online documentation system with support for:

- Text searches

  After you open a title in the Collection window, the search panel is at the bottom of the *Dyna*Text window. When you type in a search string, *Dyna*Text lists the number of hits next to the title of each book, chapter and subsection.

  Two wildcard characters are available: ? (a single character) and * (0 or more characters). *Dyna*Text performs an exact match on the search string; you will need to enter a wildcard if a word is used in both singular and plural contexts. For example:

`server`	*returns:*	`server`
`server*`	*returns:*	`server, servers, server.lib, client/server`

  Common words can be on the search engine stop list or be one of the query keywords. Either condition produces a *Dyna*Text error. Enclose the search string in quotation marks and submit again. For example:

  ```
  "use in select"
  ```

- Proximity searches

  If desired, you can include proximity search parameters in your text searches. For example:

  ```
  connection within 5 words of database
  screen within 2 words before editor
  ```

- Boolean searches

  You can also include Boolean search parameters in your text searches using the following keywords: `and`, `not`, `or`. For example:

  ```
  procedure or module
  ```

- Search forms

  Prolifics provides additional search forms which search for library functions and for text within code examples. Choose Book⇒Search Forms (Windows) or Search⇒Forms (Motif).

- Alternate documentation views

  To automatically open the graphics, instead of displaying them as icons, on the View menu, choose View⇒Main⇒Inline. (The default setting is Fulltext.)

  To view a list of tables in the documentation, on the View menu, choose View⇒TOC⇒Tabletoc.

- Public and private annotations

  You can create your own notes inside the documentation using annotations. The annotations are stored in the directory location specified in your `.ebtrc` (Motif) or `dynatext.ini` (Windows) file.

- Print capability

  You can print any section of the documentation or its table of contents to a PostScript printer or file. After you choose File⇒Print:

  - Highlight the desired section of the documentation. (It defaults to the current section of documentation in the book window.)
  - Choose the desired print format: full text or table of contents.
  - To print to a PostScript file, modify the Print Setup in Windows, or select the Print to File check box in Motif.

  Note: *Unless you print an entire chapter, the introductory paragraphs will not be printed. If you highlight Prolifics, DynaText will attempt to print the entire documentation set.*

For more information on using *Dyna*Text, refer to the *Using DynaText* title in the Collection window.

Collateral Documentation

The following information is also provided with your Prolifics installation:

- Online README file.

Additional Help

Contact Prolifics for more information on the following services:

- Product Support
- Consulting Services
- Educational Services

Installation Checklist

Use this checklist to ensure that you complete the appropriate steps to install and configure your Prolifics development environment for the chosen architecture.

Pre-Installation

❑	Determine the application architecture.	p. 4
❑	Based on architecture, decide which components to install.	p. 4
❑	Satisfy hardware and software requirements for the components you plan to install.	Windows: p. 7 Windows Web: p. 19 UNIX: p. 27 UNIX Web: p. 43

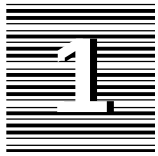
Installation

❑	Install each Prolifics component.	Windows: p. 9 UNIX: p. 30

Post-Installation

❑	Submit request for permanent license (in the mean-time, you can start using Prolifics since it is installed with a Start-up License).	Windows Web: p. 21 UNIX: p. 33
❑	Create new Prolifics executables, if necessary.	Windows: p. 13 UNIX: p. 36
❑	Configure the client environment.	Windows: p. 15 UNIX: p. 38
❑	(Web application development only) Configure the web application server environment.	Windows Web: p. 23 UNIX Web: p. 45
❑	Verify installation and configuration.	Windows: p. 16 Windows Web: p. 24 UNIX: p. 40 UNIX Web: p. 46
❑	Look at sample applications.	Windows: p. 16 Windows Web: p. 25 UNIX: p. 40 UNIX Web: p. 47

When you complete the appropriate steps in the installation checklist, and set up your application environment, you are ready to build a Prolifics application.



General Information

In order to help you install the appropriate components, this chapter describes the contents of the Panther installation package, application architectures, and the functionality of the Prolifics software components that make up your Panther distribution.

Before you begin the installation process, review the Release Notes for the latest information about Panther, including known problems.

Contents of the Installation Package

The Panther installation package consists of the items listed below. Some of these items may not be required or appropriate for your particular installation, and therefore are not included in your package. For a complete list of files included in the installation, refer to `packlist.txt` in the `notes` subdirectory of the installation.

- Prolifics client and web application server executables, with corresponding utilities, tools, and configuration files.
- JDB, the Prolifics single-user database.

- Database drivers for connecting to third-party relational databases, such as Oracle and Sybase.
- Files for C program development.
- Files for Java program development.
- License management software.
- Online documentation and help system; sample two-tier applications and a tutorial; and the Prolifics Gallery, which includes a variety of sample web applications.

Application Architecture

Choose the appropriate architecture for your application based on your requirements.

❑ Two-tier application	The two-tier client/server model typically separates data from the logic of an application.
❑ Web application	A web application is an application deployed on the web application server and viewed from a web browser. The web application server works with your HTTP server software.

Which Panther Components to Install?

For Panther, you are required to install the Prolifics client software. You can also choose to install a web application server. Each component is described, as well as the platforms on which each component is supported. Based on your chosen architecture, install the appropriate Prolifics components purchased.

- Prolifics client — Provides the development and runtime environment for building two-tier applications. Client platforms supported are:
  - ❑ UNIX
  - ❑ Windows 32-bit (95/98 and NT 4)
- Prolifics web application server — Provides the runtime environment for client-server applications that are accessed through web browsers. Web application server platforms supported are:
  - ❑ UNIX
  - ❑ Windows NT 4

For More Information

After Panther is installed and configured, you can refer to the online documentation for information on specific topics. The preface, *About this Guide*, contains a suggested reading path and more information about the documentation.

Refer to:	For:
Getting Started	Step-by-step instructions for building a two-tier application, including setting up a client environment as well as a web application server.
online *New Features Guide*	New features in Panther.
online *Upgrade Guide*	Upgrade information from JAM to Panther.
online *Configuration*	Prolifics variables used for configuring Prolifics on various platforms and to your preferences. Information on GUI resource and initialization files.
Developer's Guide	Introduction and process of how to build database applications.
online *Using the Editors*	Basic guide to the Prolifics graphical authoring environment.
Web Developer's Guide	Guide to building and deploying a Prolifics web application.
Reports	Guide to using Prolifics's report generation utility to build, modify and run reports.
Programming Guide	Guide to JPL, Prolifics's programming language, and using Java and C library functions in Prolifics.
online *JDB*	Guide to JDB, Prolifics's prototyping database, and JISQL, the interactive SQL editor for JDB.
`readme.*` in the `notes` subdirectory	Database-specific release notes detailing the setup of your Prolifics application as a database client.
`fixlist.txt` in the `notes` subdirectory	List of bugs fixed in Prolifics.

Client: Windows Installation

Client: Pre-Installation for Windows

This section discusses hardware and software requirements and upgrade information for Prolifics software running under Windows.

Hardware and Software Requirements

The full installation of the Panther development environment requires the following:

- 80486 or better processor; Pentium processor is recommended.
- A maximum of 137 MB of disk space (of which 35 is for the online documentation). However, the disk space required can be less depending on the options installed. The installation checks for adequate space.
- Microsoft Windows 95/98 or Microsoft NT 4.

  Note: *Under Windows platforms, web application servers are only supported on Windows NT, version 4.*

- 32 MB of memory.
- Database vendor's client and network software installed if you are using a database other than JDB. For more information, consult the database-specific release notes online.
- To use Java files, you must have either JDK 1.1 (Java Development Kit) or the JRE (Java Runtime Environment), or compatible versions, installed. To compile Java programs, the JDK is required. If you are using Microsoft's Virtual Machine for Java, use version 5.00.3167 (1/25/99) or later.
- If you are going to add your own C functions to Prolifics, install the Microsoft Visual C (MSVC) compiler (version 6 for Windows 95/98 and NT 4). You also need to install the MFC (Microsoft Foundation Class) portion of MSVC along with the compiler.

If you are installing a Prolifics client and web application server on the same Windows NT machine, you must install them in the same directory. This allows them to share common environment settings that point to the location of required files. It also saves disk space.

Upgrading

If you are upgrading from an earlier version of Prolifics, install Panther in a separate directory from previous installations, for example, `C:\Panther`.

The setup program unsets any existing `SMVARS`, `SMPATH`, `SMTERM`, `SMMSGS`, `SMKEY`, and `SMVIDEO` settings in your `autoexec.bat` file. The setup program lets you choose from the following three options:

- Let the setup program modify the `autoexec.bat` file. The existing `autoexec.bat` is saved to `autoexec.xxx` where `xxx` is a three-number extension.
- Save the required changes to `autoexec.new` file.
- Not make any changes for the `autoexec.bat` file.

After successfully installing Prolifics software, there are several post-installation steps required to start using Prolifics. This chapter discusses licensing, building Prolifics executables, the steps required to set up the environment for each of the Prolifics components installed, and post-installation issues and troubleshooting tips.

Client: Installation for Windows

These instructions apply to both first-time installations and to upgrades from previous versions of JAM and Prolifics. Before beginning the installation, review the requirements and other pre-installation steps discussed earlier in this chapter.

This section discusses running the setup program to install a Prolifics client and database drivers under Windows.

Installation Procedure

Panther is supplied in compressed form on CD-ROM along with a Windows-based setup program.

To run the setup program:

1. Insert the CD-ROM in the appropriate drive.

2. If the setup program does not start automatically, choose Start⇒Run. In the Run dialog box, type `D:SETUP` (where `D` is the letter of the drive from which you are installing).

   Choose to install the Client software.

   The setup guides you through the steps to install and configure your installation.

3. During the installation you can select a setup type. Each setup type includes certain Prolifics components. The components are:

   - Program Files — Required to run Prolifics. Contains all configuration files, utilities, and DLLs necessary to run the Prolifics development environment.

   - Development Files — Optional. Only necessary if you want to add your own C code, link out certain options, link statically with a database driver, or use Java files with the client or web application server.

   - Samples and Tutorial Files — Optional. Installs the sample applications VideoBiz (two-tier application), Enterprise Bank (three-tier application), sample ActiveX controls, and the Tutorial.

   - Help Files and Online Documentation — Optional. Since these can be quite large, consider sharing a copy across a network if disk space is a concern. Or, if you are installing from CD-ROM, leave the files on the CD-ROM rather than copying them to your PC.

Installing a Database Driver

After you install the Prolifics client and or web application server on a machine, you can begin the database driver installation.

To install database drivers:

1. Insert CD-ROM.
2. Choose Start⇒Run. In the Run dialog box, type `D:/setup` (where D is the letter of the drive from which you are installing).
3. Choose to install database drivers.
4. Select appropriate database.
5. Select from the following options:
   - Complete Install — Copies the driver files to your PC and configures `PROL4W32.INI` for your database version. Choose this option if you have not previously installed database driver software.
   - Configuration — Updates `PROL4W32.INI` for another version of the database. Choose this option if you already installed the database driver and want to modify the database version in `PROL4W32.INI`.
6. Select or confirm the version of your database software. If your version is not listed, choose the option `Other`.

If you are using a database for which DLLs are not provided (see list of provided DLLs that follows), you must edit the `makefile` to link in your database, and then recompile Prolifics using a C compiler. Refer to page 13 for information on creating new Prolifics executables.

Since database vendors frequently update database versions, your particular database version may not be listed in the Prolifics install program. In this case, choose the latest version for your Prolifics database driver installation. Prolifics provides DLLs for the currently available versions of the following database client software:

Informix

Windows 95/98:	Informix Version 7.20.TDI Or latest version Other
Windows NT:	Informix Version 7.10 Informix Version 7.20.TDI Informix Version 7.20.TEI Or latest version Other

For more information, refer to `readme.inf` in the Prolifics `notes` subdirectory.

If you don't know your Informix version, check the release number listed in the text files provided in `INFORMIXDIR\release` where `INFORMIXDIR` is the root Informix installation.

Microsoft SQL Server

Windows 95/98 and NT:	Microsoft SQL Server Version 6 Or latest version Other

ODBC

Windows 95/98 and NT:	Microsoft Open Database Connectivity version 2 Microsoft Open Database Connectivity version 3 Or latest version Other

If your ODBC version is 2.x or earlier, choose Version 2. ODBC version 1 is compatible with version 2.

Oracle

Windows 95/98:	Oracle Version 7 to 7.2 using OCI Oracle Version 7 to 7.2 using Pro*C Oracle Version 7.3 using OCI Oracle Version 7.3 using Pro*C Oracle Version 8 using OCI Oracle Version 8 using Pro*C Or latest version Other
Windows NT:	Oracle Version 7.3 using OCI Oracle Version 7.3 using Pro*C Oracle Version 8 using OCI Oracle Version 8 using Pro*C Or latest version Other

Check for the supported version in the entry in `ORACLE_HOME\orainst\win95.rgs` or `ORACLE_HOME\orainst\winNT.rgs`. Note that Pro*C 1.5.x is equivalent to Oracle 7.

Oracle supports two development interfaces: a C language API called OCI and an embedded SQL language, Pro*C. Most applications can use Prolifics's OCI or Pro*C interfaces interchangeably. Typically, Prolifics developers use the OCI interface unless they are linking their own custom Pro*C functions with Prolifics. To use Oracle's stored procedures, you must use the OCI interface.

Sybase

Windows 95/98 and NT:	Sybase Version 10 using DB-Library Sybase Version 10 using CT-Library Sybase Version 11 using DB-Library Sybase Version 11 using CT-Library Or latest version Other

For versions of Sybase earlier than 10, Prolifics/Sybase requires the DB-Library interface. With Prolifics/Sybase's support for Sybase Open Client Version 10, two interfaces are supported, DB-Library and CT-Library.

If you do not know your Sybase version, run the Sybase Windows program `sqlver.exe` or refer to the About menu option of any of the Sybase Windows program (for example, `sybping.exe`).

Client: Post-Installation for Windows

Post-Installation Overview

As part of post-installation, you need to perform the following general steps for client installations, some of which are based on the architecture of your application. The details of the steps are provided in the pages that follow.

1. Create new Prolifics executables if required.
2. Configure the client environment (refer to page 15).
3. Verify the Prolifics installation based on what you installed (refer to page 16).
4. Look at sample applications (refer to page 16).

Create New Prolifics Executables

As part of the Prolifics installation package, a set of standard Prolifics executables is provided. Depending on your configuration and on the platform and database being used, you might need to create new executables. Specifically, a new executable is required if you are using a database for which DLLs are not provided (that is, your database is not among those listed starting on page 10).

To create new executables, Prolifics distributes a single makefile that can be invoked via the command line utility, `nmake`. The instructions are detailed below. Alternatively, Prolifics distributes a workspace and project files for use with Microsoft Developer Studio. Instructions on how to use the workspace are provided in the Release Notes.

To create a new Prolifics executable:

1. Complete the Prolifics installation process.
2. Ensure that the appropriate application variables (`SMBASE`, etc.) have been applied to your environment.
3. Go to your application directory (or create one) and copy all files from the Prolifics `link` subdirectory to it.
4. Edit the `makefile` in your application directory, commenting or uncommenting lines as needed to build the appropriate executables. For further information, refer to page 14.

5. Uncomment the appropriate database in the `makefile` and edit the database-specific `makevars.`*dbs* (where *dbs* is the extension of the database) file to choose the correct version of your database software. For further information, refer to page 15.

6. Type `nmake` at the command line to build the executable. By default, the `makefile` in the current directory is used for the `make` (and `nmake`) command.

7. The `make` process creates a new Prolifics executable, `prodev32.exe`. Give the executable file a unique name to distinguish it from the distributed executable or others that you have built differently.

8. If you built a new web application server executable (`jserver`), modify the `SERVER` variable in your application's initialization file to reference the new `jserver` executable in its own directory. Do not overwrite the `jserver` executable in the `util` directory.

Specifying the Executables

To indicate the executables to build, edit the `makefile` in your application directory:

1. Comment or uncomment the appropriate client executables as needed (these are uncommented by default):

`PRORUN = prorun32.exe`	Runtime executable
`PRODEV = prodev32.exe`	Development executable
`RWRUN = rwrun32.exe`	Report utility

   If web application server software has been installed, comment or uncomment the server executable as needed:

`JSERVER = jserver.exe`	Web application server executable (uncommented by default)

2. To override the value of certain application variables such as `SMBASE`, uncomment the appropriate lines in the `PARAMETERS` section.

3. If you have the Prolifics web application server on the same machine as other Prolifics software, it is recommended that they be installed in the same directory. However, if they are not in the same directory, set `WEBBASE` (in `WEB PARAMETERS` section) to the web application server installation directory.

4. The Prolifics debugger allows you to trace JPL and Prolifics screen events and is installed by default for clients. If you do not wish to use the debugger, comment the lines in the `DEBUGGER PARAMETERS` section.

5. If you want to add Microsoft Codeview debugging information, uncomment the corresponding block.

Linking in the Database

If you are using a database for which DLLs are not provided, you must edit the `makefile` in your application directory to link in the appropriate database.

To include the appropriate database in your executables:

1. Uncomment the appropriate `include` statement in the `SELECT DATABASE SOFTWARE` section of the `makefile`.

   By default, JDB is uncommented. If you choose another database, you can leave JDB uncommented (and include it in your executable), or you can comment out JDB and include only your database.

2. Edit the corresponding `makevars.`*dbs* (where *dbs* is the extension of the database) file to choose the correct version of your database software.

   In the `makevars.`*dbs* file, verify or update the following:

   - Set the flag *dbs*`_INIT` to one of the following: `d`, `l`, `u`, `p`. This flag controls the handling for case sensitivity. The default is `d`. To find out what the default is for your database engine, refer to the online database-specific driver notes.
   - In the *databaseName* `PARAMETERS` section of `makevars`, verify your database engine's version. Uncomment the appropriate block of parameters based upon this version. Also, verify and correct the pathnames if necessary.
   - Set the flag *dbs*`_ENGNAME` to specify the default engine name.

   For more information, refer to the online database-specific driver notes for additional information on database engines and on case handling.

Configure the Client Environment

A Prolifics client provides the development environment required to build two-tier applications. The environment must contain properly set application variables in order to run Prolifics. To set up the development environment, complete the following platform-specific steps. Refer to the *Developer's Guide* for more details on setting up the client environment.

For each Windows client:

Set the following variables in the following initialization files: `prol4w32.ini` for Prolifics and `mbedit32.ini` for the menu bar editor.

- `SMFLIBS` — Specify the names of libraries to open automatically during development and at runtime.

- JAVA_HOME and CLASSPATH — These path names are specific to Java files and event handlers and need to be set to the location where your Java classes sit. Additionally, you can change the defaults for SMJAVAEDITOR and SMJAVAFACTORY and SMJAVALIBRARY For more information, refer to the *Developer's Guide*.

Verify the Installation

After you install and configure the Prolifics client, you should verify that it starts up properly. If Prolifics software is not installed and configured correctly, an error message is displayed. Depending on the problem, the program might also terminate. Refer to page 77 for a list of the more common error messages related to system configuration, and how to resolve them.

Client Installation

On a client machine, a correct installation is verified if you can invoke the Prolifics editor.

To verify a Windows client installation:

Select the Panther item from the Start menu or double-click on the Panther icon.

Look at Sample Applications

Before you begin building your applications, you might want to look at the following sample application:

VideoBiz (two-tier application)

Choose the VideoBiz sample on the Start menu. For more information on VideoBiz, refer to the *Developer's Guide*.

Troubleshooting

The information in this section is intended to provide you with additional guidance when you encounter error messages.

Graph Functionality

Prolifics's graph capabilities rely upon external programs (for example, DLLs), therefore, it is possible for Prolifics to be working properly except for the business graph component. If you have problems with the graph functionality, check the following:

Note: *The setup program normally performs all of these steps.*

- Ensure that `libsti.ini` (distributed in the `config` directory) resides in the Windows directory and contains the correct paths in it for the `IPT` variable.
- Ensure that `libsti.dll` (distributed in the `util` directory) can be found in a directory along the `PATH`.

Windows PATH Settings

If you are upgrading from JAM or an earlier version of Prolifics, remember that Prolifics's `util` directory must be on your `PATH`. Normally, this is not an issue since the installation process inserts the Prolifics `util` directory at the beginning of the `PATH` variable. However, the `PATH` might contain the older `util` directory. If this is the case, manually edit the `PATH` specification in the `autoexec.bat` file to remove the older `util` directory.

Online Help and Manuals

Prolifics's online help and manuals are built and displayed with *Dyna*Text by Inso Corporation. To verify that you can access the online documents, double-click the *Dyna*Text icon. You should see a dialog containing a list of documents available through *Dyna*Text. If you have problems accessing the documents:

Note: *The setup program normally performs all of these steps for you.*

- Ensure that the Prolifics `util` directory is included in the `PATH` variable.
- Ensure that the `dynatext.ini` resides in the Windows directory.
- Ensure that `SMBASE` is set to point to your Prolifics installation.

Adding Panther Documents

If *Dyna*Text was previously installed, you can use your existing *Dyna*Text configuration file (`dynatext.ini`) to include the Panther manuals with your existing list of documents.

To include the Panther manuals in an existing DynaText collection:
Add the following to the `COLLECTION` line:

- Windows: In `dynatext.ini`: *ProlificsInstallDir*`\docs = Panther`

Web Application Server: Windows

This chapter contains information for installing the Prolifics web application server. For information about installing Prolifics client software, refer to page 7.

Web Application Server: Pre-Installation for Windows

Web application servers are only supported on Windows NT, version 4 or higher.

To install a web application server, an HTTP server must be configured and running on the same system. Prolifics supports industry favorites, such as Netscape's Enterprise Server and Microsoft Internet Information Server.

Prolifics supports CGI, ISAPI, and NSAPI architectures. You can select one according to your preferred configuration.

The Prolifics web application server requires a maximum of 40 MB of disk space.

To use Java files, you must have either JDK 1.1 (Java Development Kit) or the JRE (Java Runtime Environment), or compatible versions, installed. To compile Java programs, the JDK is required. If you are using Microsoft's Virtual Machine for Java, use version 5.00.3167 (1/25/99) or later.

If you are installing a Prolifics client and web application server on the same Windows NT machine, it is recommended that you install them in the same directory. This allows them to share common environment settings that point to the location of required files. It also saves disk space.

Before Installing

Before installing a Prolifics web application server, determine the HTTP server name and the name of the CGI or ISAPI or NSAPI program directory. Also, verify that your HTTP server is running. Consult your system administrator or your web server administrator to determine the correct names. Enter the names here for future reference:

- My HTTP server name is _____
- My HTTP server `\www\scripts` directory is _____

The `\scripts\` directory stores the server's gateway programs. Another common name for this directory is `cgi-bin`.

Web Application Server: Post-Installation for Windows

Refer to page 9 for information on running the setup program to install Prolifics software under Windows. You will be prompted during the installation process for the Start-up License, which is provided on a separate floppy disk.

If you install the web application server on a separate machine from Prolifics client software, you must also install the database drivers on that machine.

Post-Installation Overview

As part of post-installation, you need to perform the following general steps for web application server installations. The details of the steps are provided in the pages that follow.

1. Obtain a permanent license file before the Start-up License file expires.
2. Create new Prolifics executables if required (refer to page 13).
3. Configure the web server environment (refer to page 23).
4. Verify the web application server installation (refer to page 24).
5. Look at samples (refer to page 25).

Licensing for Prolifics Web Application Server

The Prolifics installation includes a Start-up License, provided on a floppy diskette, that lets you use Prolifics (and run Prolifics applications) immediately. The temporary license, `license.dat`, is installed in the `licenses` subdirectory of the Prolifics installation directory. Since the license will expire, you must contact the Prolifics License Desk to receive your permanent license file. Make your request now and return to this section when you receive the permanent license file.

The setup program prompts you for the Start-up License floppy disk during the initial installation.

Obtaining a Permanent License File

You must obtain a permanent license file before the Start-up License expires to continue to develop Prolifics web applications. Each web application server must have access to a license file.

Note: *The Prolifics web application server requires a license during development and deployment.*

During installation, the setup program prompted you to provide the License Desk with the appropriate information to obtain your permanent license file. It also generated license request files (`*.lcl`) in the `licenses` subdirectory of your Prolifics installation directory for each component installed on a given machine.

To obtain the license file:

1. Submit the license request file (for each component on a given machine) to the Prolifics License Desk. The License Desk returns the password-enabled file for each component on a given machine via the requested method (as specified during setup).

2. Install the license file or files.

Refer to Appendix C for more information on licensing, and to Appendix D for a description of the contents of a license file.

Installing the License File

The web application server (`proweb`) receives its own license file (`proweb.lic`). Install the password-enabled license file on the appropriate machine, and then, run the `create_license` utility to create a `license.dat` for each machine. Follow the directions for the method of receipt.

Note: *In the following procedures, replace references to* `SMBASE` *with the full pathname of the Prolifics installation directory.*

To install a permanent license file:

1. If you received a license file via e-mail, copy it to the `licenses` directory: `proweb.lic` (web application server). Proceed to Step 3.

2. If you received a license file via fax or mail, make a copy of the license request file (having `*.lcl` extension) in the `licenses` directory, giving the copy a `.lic` extension. For example:

   - Open the license request file using a text editor (such as Wordpad) and save it with a `.lic` extension. For example, open `SMBASE\licenses\prodev.lcl` (client development license template), choose File⇒Save As, and save it as `prodev.lic`.

   - Update the copy of the license file (`*.lic` file) with the information provided in the password-enabled file you received.

     Replace text in angle brackets (and the angle brackets) with the corresponding information provided on the `Feature` line. For example, replace `<number of tokens>` and `<password>` with the appropriate information from the password-enabled license file.

Repeat Steps 2 and 3 for each license file you received for this machine.

3. Create the `license.dat`:

   Choose Start⇒Run, and type:

   ```
   SMBASE\licenses\create_license
   ```

   All `.lic` files for the machine are merged into a single `license.dat` file in the `licenses` directory and the Start-up License is saved as `license.bak`.

Location of the License File

Prolifics searches for the license file in the following order:

- The pathname given by the setting of `LM_LICENSE_FILE` in the `prol4w32.ini` files.
- The pathname given by the `LMLicenseFile` variable in your web application initialization.
- The pathname given by the `LM_LICENSE_FILE` variable.
- `license.dat` in `licenses` subdirectory of the Prolifics installation (recommended location).
- `c:\flexlm\license.dat`.

Configure the Web Application Server Environment

To ensure that your Prolifics application can be viewed on a web browser, complete the following platform-specific steps, most of which were applied as part of the Prolifics setup program. For further information on configuring web applications, refer to the *Web Developer's Guide*.

1. Confirm that the following web application server executables reside in your HTTP server's CGI directory; otherwise, copy them from the Prolifics `util` subdirectory:

   - `websetup.exe` (Prolifics Web Setup Manager)
   - `jwsamp.exe` (sample application executable)

2. Confirm that the following initialization file resides in your Windows system directory; otherwise, copy it from the Prolifics `config` subdirectory:

   - `jwsamp.ini`

3. Check `jwsamp.ini` in the Windows directory for the correct setting for each of the following variables:

- `AppDirectory` — Full pathname to the Prolifics `samples` subdirectory to provide initialization information for the sample web application.
- `Dispatcher` — Full pathname of the `dispatcher.exe` program in the `util` subdirectory of the installation directory.
- `Server` — Full pathname of the `jserver.exe` program in the `util` subdirectory of the installation directory.
- `SMBASE` — Full pathname of the Prolifics installation directory.
- `PATH` — Full pathname of the `util` subdirectory of the installation directory.

Creating a Web Application

Prolifics provides the Prolifics Web Setup Manager to guide you through configuring your customized web application. For more information, refer to the *Web Developer's Guide*. Choose Prolifics Web Setup Manager on the Start Menu.

Verify the Installation

After you install and configure the Prolifics web application server, you should verify that it starts up properly on web application server machines. If Prolifics software is not installed and configured correctly, an appropriate error message is displayed. Depending on the problem, the program might also terminate. Refer to Appendix E for a list of the more common error messages related to system configuration, and how to resolve them.

Web Application Server Installation

On the Prolifics web application server machine, verify the installation by running the Prolifics Gallery, and verify the configuration by running your own application.

To verify the Prolifics web application server installation:

Run the Prolifics Gallery:

- Choose Start Prolifics Gallery Server on the Start Menu.
- Choose View Prolifics Gallery Samples on the Start Menu.
- Choose Stop Prolifics Gallery Server on the Start Menu when you are finished.

To verify that your web application server configuration and licensing are correct:

- Configure a new application by running Web Setup Manager from the Start Menu.
- Start the application by typing:

  `monitor -install` *applicationName*
  `netstart` *applicationName*

- Run the application in your browser:

  `http://`*serverName*`/`*program_directory*`/`*applicationName*

If you get the message “No Service Requested!” you were successful.

Look at Samples

Before you begin building your applications, you might want to look at the following sample applications:

QuickStart
QuickStart provides step-by-step instructions on building and deploying sample applications on the web.

Choose QuickStart on the Start menu.

Prolifics Gallery (web application)
Provides several pre-built sample applications for the web.

- Choose Start Prolifics Gallery Server on the Start Menu.
- Choose View Prolifics Gallery Samples on the Start Menu.
- Choose Stop Prolifics Gallery Server on the Start Menu when you are finished.

Client: UNIX Installation

Client: Pre-Installation for UNIX

This section discusses issues to consider before installing Panther on UNIX. They are:

- Hardware and software requirements.
- File ownership and protection.
- Location of files.

For web application development, refer to page 43 for information about installing a Prolifics web application server.

Hardware and Software Requirements

- Prolifics software requires a maximum of 138 MB of disk space, of which 41 MB is for online documentation.

- Running Prolifics under character mode has no special requirements.
- The supported version of Motif for AIX 4.3, HPUX 11, and Solaris 7 is Motif 2.1; for all other platforms, it is Motif 1.2.x.

  For information on obtaining your Motif version number, refer to page 41.
- Database vendor's client and network software if you are using a database other than JDB. For more information, consult the database-specific release notes located in the `notes` directory.
- A TCP/IP network is required to run the license management software.
- A C compiler is required to add code in C, relink the executables, or add support for a database.
- To use Java files, you must have either JDK 1.1 (Java Development Kit) or a JRE (Java Runtime Environment) installed. To compile Java files, JDK 1.1 is required.

File Ownership and Protection

Before installing Prolifics software on a UNIX platform, consider the issues of file ownership and protection.

Implement File Protection

Once they are installed, the files distributed with Prolifics software should not be modified except under special circumstances, for example, to create a new executable. To prevent inadvertent changes to the files, it is recommended that write-access to them be limited to a system administrator (or a specially created `prolifics` login), and that general Prolifics users be allowed only read-access.

Two suggested ways of implementing the above recommendations are:

- Login as `root` to install the files. After installation is complete, set the permissions so that only `root` can modify the files but all others can read and/or execute them. See `chmod` in your system manual, or type `man chmod` for information on setting permissions.
- Create a dummy login ID (for example, `prolifics`), then login as that user and perform the installation. This allows whomever has access to the `prolifics` login account to control ownership, permissions, and modifications. This approach accommodates systems for which access to the root account is tightly controlled.

Do not install Prolifics software into a particular user's account; it most likely will cause maintenance problems.

Determine File Location

After deciding who is going to own the Prolifics files (`root` or a dummy login ID), determine where they will be installed (referred to as the Prolifics installation directory or `SMBASE`). Once this directory is set up, do not change it, since users are likely to embed the directory name in makefiles, shell scripts, and so forth. The default installation directory is `/usr/prolifics`.

If your system layout does not permit you to put the files in `/usr/prolifics`, it might allow a symbolic link from `/usr/prolifics` to the directory using the `ln -s` command.

Upgrading

If you are upgrading from a version of JAM or Prolifics, it is recommended that you install Panther in a different directory from your previous installations.

Client: Installation for UNIX

These instructions apply to both first-time installations and to upgrades from previous versions of JAM and Prolifics. Before beginning the installation, review the requirements and other pre-installation steps discussed earlier in this chapter.

This section discusses installing a Prolifics client, database drivers (if necessary), and the setup requirements for a UNIX client.

To install Panther, you need to perform the following steps. The details of the steps are provided in the pages that follow.

1. Install Prolifics software from the supplied media. If you are using a database other than JDB, install the appropriate database drivers from the supplied media.
2. Run the setup program to configure the installation.
3. Install the Start-up License.

The installation process might require several additional steps, depending on your system configuration and requirements.

Installation Procedure

The procedure described here assumes that `/usr/prolifics` is the Prolifics installation directory, often referred to as `SMBASE`. If you are not installing to `/usr/prolifics`, substitute the name of the directory you are using.

Installing Prolifics software on UNIX requires you to copy the distribution from the delivered media.

The Panther installation package comes with supported database drivers for each platform.

To install Panther from a CD-ROM:

1. Log in as `root` or with the login you devised for the installation.
2. At the command line, type:

   ```
   mkdir /usr/prolifics
   ```

3. Go to the `/usr/prolifics` directory by typing:

   ```
   cd /usr/prolifics
   ```

4. Mount the CD-ROM device as `/cdrom`.

5. In `/usr/prolifics`, to uncompress and extract the contents of the Panther distribution, type:

   `zcat < /cdrom/`*`CompressedTarFilename`* `| tar –xvf –`

   On HPUX, type:

   `zcat < /cdrom/"`*`CompressedTarFilename`*`" | tar –xvf –`

   Filenames for the Panther distribution are:

Filename	Product
prlstd2t400.tar.Z	Two-tier Client
prlstdwb400.tar.Z	Two-tier Web Application Server
prl*dbs*400.tar.Z	Database driver(s)

When Prolifics software is loaded, your normal prompt displays.

Configuring the Installation

After you copy the distribution from the tape, run the setup program to configure your installation.

To configure the installation:

1. If you are installing the web application server on the same machine, complete the pre-installation steps on page 44.

2. Go to the installation directory by typing:

   ```
   cd /usr/prolifics
   ```

3. Access the setup program which guides you through the steps to configure your installation by typing:

   ```
   Setup
   ```

Once you finish running the setup program, refer to page 40 to verify the installation and configuration.

Start-up License

Prolifics requires licensing in order to develop and run Prolifics applications. A Start-Up License is provided to allow you to begin using Prolifics immediately

while your request for a permanent license is being processed. The Start-up License is provided on a PC floppy disk and on paper.

If you wish to install the license from the PC floppy disk, you may need to mount the floppy on another computer and then transfer the Start-up License file to the computer on which you are installing Prolifics software, using a transfer file utility such as ftp. Copy the `license.dat` file to `/usr/prolifics/licenses`or to the `/licenses` subdirectory of your Prolifics installation.

Alternatively, enter the contents of `license.dat` from the paper copy provided.

Additional Procedures

The following additional procedures might be required to configure Prolifics on a UNIX system:

- If you are installing Prolifics as a UNIX client, you need to set several application variables and set up access to several configuration files for the client. For information on configuring the client environment, refer to page 38.

- If you are using a database other than JDB, you must edit the `makefile` and the database-specific file, and then rebuild Prolifics executables to link in support for your database. Refer to page 36 for information on creating new Prolifics executables.

Client: Post-Installation for UNIX

After successfully installing Prolifics software, there are several post-installation steps required to start using Prolifics. This chapter discusses licensing, building Prolifics executables, setting up the environment for each of the Prolifics components installed, and post-installation issues and troubleshooting tips.

Post-Installation Overview

As part of post-installation, you need to perform the following general steps, some of which are based on the architecture of your application. The details of the steps are provided in the pages that follow.

1. Obtain a permanent license file before the Start-up License file expires.
2. Create new Prolifics executables if required (refer to page 36).
3. Configure the client environment (refer to page 38).
4. Verify the Prolifics installation based on what you installed (refer to page 40).
5. Look at a sample application (refer to page 40).

Licensing for Prolifics

The Prolifics installation includes a Start-up License that lets you use Prolifics (and run Prolifics applications) immediately. The temporary license, `license.dat`, is located in the `licenses` subdirectory of the Prolifics installation directory. Since the license expires in 45 days, you must contact the Prolifics License Desk during this period to receive your permanent license file. Make your request as soon as possible and return to this section when you receive the permanent license file.

Obtaining a Permanent License File

You must obtain a permanent license file before the Start-up License expires to continue to develop and run Prolifics applications. Each development client must have access to a license file.

Note: *All development components require licenses. In a deployed application, the web application server (if applicable) requires a license, but the client does not.*

During installation, the setup program prompted you to provide the License Desk with the appropriate information to obtain your permanent license file. It also generated license request files (`*.lcl`) in the `licenses` subdirectory of your Prolifics installation directory for each component installed on a given machine.

To obtain the license file:

1. Submit the license request file (for each component on a given machine) to the Prolifics License Desk. The License Desk returns the password-enabled file for each component on a given machine via the requested method (as specified during setup).
2. Install the license file or files.
3. Start the license manager daemon.

For more information on licensing, refer to Appendix C, and to Appendix D for a description of the contents of a license file.

Installing the License File

Each component you install on a machine—client (`prodev`) and web application server (`proweb`)—receives its own license file (`*.lic`). Install each password-enabled license file on its appropriate machine, and then, via the `create_license` utility, merge them into a single `license.dat` for each machine. Follow the directions for the method of receipt.

To install a permanent license file:

1. If you received license files via e-mail, copy them to the `licenses` directory: `prodev.lic` (client development license) and `proweb.lic` (web application server) if applicable. Proceed to Step 4.
2. If you received a license file via fax or mail, make a copy of the license request file (having `*.lcl` extension) in the `licenses` directory, giving the copy a `.lic` extension. For example:

   In the `licenses` directory, type:

   ```
   cp prodev.lcl prodev.lic
   ```

3. Update the copy of the license file (`*.lic` file) with the information you received (via fax or mail).

   Replace text in angle brackets (and the angle brackets) with the corresponding information provided on the `Feature` line. For example, replace <`number of tokens`> and <`password`> with the appropriate information from the password-enabled license file.

   Repeat Steps 2 and 3 for each license file you received for this machine.

4. Create the `license.dat`:

   From the `licenses` directory, type:

   ```
   ./create_license
   ```

   All `.lic` files for the machine are merged into a single `license.dat` file in the `licenses` directory and the Start-up License is saved as `license.bak`.

Note: *After installing the license, if your environment has an old* `LM_LICENSE_FILE` *setting, you need to unset it as follows:*

Bourne or Korn shell: `unset LM_LICENSE_FILE`
C Shell: `unsetenv LM_LICENSE_FILE`

Or you can explicitly set it to the license file.

Location of the License File

Prolifics searches for the license file in the following order:

- The pathname given by the `LMLicenseFile` variable in your web application initialization (web only).
- The pathname given by the `LM_LICENSE_FILE` variable.
- `license.dat` in `licenses` subdirectory of the Prolifics installation (recommended location).
- `/usr/local/flexlm/licenses/license.dat`

Starting the License Manager

After you create the `license.dat` file, you can start the license manager. Make sure that you are using version 5.0 or higher of the license manager daemon, `lmgrd`.

Note: *The web application server does not require the license daemon.*

To determine the version of lmgrd:
At the command line, type:

ProlificsInstallDir`/util/lmver lmgrd.exe`

To start the license manager:
At the command line, type:

ProlificsInstallDir`/util/lmgrd -c` *ProlificsInstallDir*`/licenses/license.dat> log&`

where *log* is the name of a log file to which output is redirected.

Starting the license manager does not interfere with another `lmgrd` that might be running to license another application. However, if you are running `lmgrd` for previous versions of Prolifics, you must stop the license daemon using `lmdown` and restart `lmgrd` as described, or run `lmreread` to incorporate new Prolifics license daemon information.

Note: *It is recommended that you add this command to the system startup scripts file so that the daemon runs automatically when the system is rebooted.*

Create New Prolifics Executables

As part of the Prolifics installation package, a set of standard Prolifics executables is provided. Depending on your configuration and on the platform and database being used, you might need to create new executables. Specifically, a new executable is required if you are:

- Using a database other than JDB.
- Using IXI Motif libraries.

To create a new Prolifics executable:

1. Complete the Prolifics installation process, including licensing.
2. Ensure that the appropriate application variables (`SMBASE`, etc.) have been applied to your environment.
3. Go to your application directory (or create one) and copy all files from the Prolifics `link` subdirectory to it.
4. Edit the `makefile` in your application directory, commenting or uncommenting lines as needed to build the appropriate executables. For further information, refer to page 37.
5. Uncomment the appropriate database in the `makefile` and edit the database-specific `makevars`.*dbs* (where *dbs* is the extension of the database) file to choose the correct version of your database software. For further information, refer to page 37.
6. Type `make` at the command line to build the executable. By default, the `makefile` in the current directory is used for the `make` command.
7. The `make` process creates a new Prolifics executable, `prodev`. Give the executable file a unique name to distinguish it from the distributed executable or others that you have built differently.
8. If you are running IXI Motif, and you rebuilt the `prorun` executable, copy the new `prorun` to `jiutil` in the Prolifics `util` subdirectory.
9. If you built a new web application server executable (`jserver`), modify the `SERVER` variable in your applications' initialization files to reference the new `jserver` executable in its own directory. Do not overwrite the `jserver` executable in the `util` directory.

Specifying the Executables

To indicate the executables to build, edit the `makefile` in your application directory:

1. Comment or uncomment the appropriate client executables as needed (these are uncommented by default):

`PRORUN = prorun`	Runtime executable
`PRODEV = prodev`	Development executable
`RWRUN = rwrun`	Report batch utility

   For platforms that have been installed with web application server software, comment or uncomment the server executable as needed:

`JSERVER = jserver`	Web application server executable (uncommented by default)

2. To override the value of certain application variables such as `SMBASE`, uncomment the appropriate lines in the `PARAMETERS` section.

3. If you have the Prolifics web application server on the same machine as other Prolifics software, it is recommended that they be installed in the same directory. However, if they are not in the same directory, set `WEBBASE` (in `WEB PARAMETERS` section) to the web application server installation directory.

4. The Prolifics debugger allows you to trace JPL and Prolifics screen events and is installed by default for clients. If you do not wish to use the debugger, comment the lines in the `DEBUGGER PARAMETERS` section.

Linking in the Database

If you are using a database other than JDB, you must edit the `makefile` in your application directory to link in the appropriate database.

To include the appropriate database in your executables:

1. Uncomment the appropriate `include` statement in the `SELECT DATABASE SOFTWARE` section of the `makefile`.

   By default, JDB is uncommented. If you choose another database, you can leave JDB uncommented (and include it in your executable), or you can comment out JDB and include only your database.

2. Edit the corresponding `makevars.`*dbs* (where *dbs* is the extension of the database) file to choose the correct version of your database software.

   In the `makevars.`*dbs* file, verify or update the following:

   - Set the flag *dbs*`_INIT` to one of the following: `d`, `l`, `u`, `p`. This flag controls the handling for case sensitivity. The default is `d`. To find out what the default is for your database engine, refer to the online database-specific driver notes.

- In the *databaseName* PARAMETERS section of makevars, verify your database engine's version. Uncomment the appropriate block of parameters based upon this version. Also, verify and correct the pathnames if necessary.
- Set the flag *dbs*_ENGNAME to specify the default engine name.

Before changing these values, refer to the online *Database Drivers* for additional information on database engines and on case handling.

Configure the Client Environment

A Prolifics client provides the development environment required to build two-tier applications. The environment must contain properly set application variables in order to run Prolifics. To set up the development environment, complete the following platform-specific steps. Refer to the online *Developer's Guide* for more details on setting up the client environment.

1. For each client, copy the following files in the installation config directory to each developer's home directory:
   - .ebtrc — Used by the online help systems. Copy the file or set the EBTRC variable to point to it; refer to Step 4.
   - Prolifics — X resource file used by the Prolifics client. Copy to each user's app-defaults directory (if there is one) or to the user's home directory.
2. The setup shell scripts are useful for setting Prolifics application variables. The setup program determined values for some of these variables, based on your system's configuration, and modified the scripts accordingly. Review setup.sh (Bourne or Korn shell users) and setup.csh (C shell users) in the application directory (if it exists) or the file $SMBASE/config/setup.sh ($SMBASE/config/setup.csh) to ensure proper settings for the following application variables:
   - SMBASE — Full pathname of the Prolifics installation directory. The installation recommends /usr/prolifics; therefore, SMBASE would be set to equal /usr/prolifics. If Prolifics was installed in a different directory, use that directory's name.
   - PATH — Identifies directories to search when looking for executable programs. PATH should include the path to Prolifics's util directory so that the system can find the development executable (prodev) and Prolifics utilities. If Prolifics's util directory is not on the PATH, business graphs and online help will not work.

- JAVA_HOME and CLASSPATH — These path names are specific to Java files and event handlers and need to be set to the location where your Java classes sit. Additionally, you can change the defaults for SMJAVAEDITOR and SMJAVAFACTORY and SMJAVALIBRARY. For more information refer to the online *Developer's Guide*.

- SMTERM — Specifies the type/model console the client is using. For Motif, set SMTERM to X.

  If you are running a character mode terminal with Prolifics, then you need to have appropriate video and key files, which instruct Prolifics on how to drive your terminal. Prolifics provides files to support several popular terminal types, which are in turn often emulated by other brands of terminals. Refer to the *Configuration Guide* for details on video files. Then examine the file $SMBASE/config/smvars There you should find a setting of SMTERM which meets your needs.

- LM_LICENSE_FILE — Full pathname of the license file (default location is $SMBASE/licenses/license.dat).

- LD_LIBRARY_PATH — Identifies directories to search when looking for shared libraries. On HPUX, use SHLIB_PATH in place of LD_LIBRARY_PATH. On AIX, use LIBPATH. LD_LIBRARY_PATH should include the path to the Motif shared library directory, and the path to the Prolifics lib directory to find shared libraries.

- XNLSPATH — Some implementations of Motif require you to set the XNLSPATH application variable before Prolifics can be successfully used. Check the documentation for your implementation of Motif to see if this is the case for you.

3. You can set SMFLIBS in setup.sh to point to shared Prolifics application libraries in the application directory and have them open automatically.

4. To use online documentation, set and export EBTRC. The variable should point to the .ebtrc file, distributed in the Prolifics config directory if the .ebtrc file is not copied to the user's home directory.

5. To automatically set up the environment, execute the setup shell script directly from each users logon script (.profile or .cshrc).

   - Korn or Bourne shell — Append the following line to the .profile:

     . *applicationDir*/setup.sh

   - C-shell — Append the following line to the .cshrc:

     source *applicationDir*/setup.csh

This assumes that you are using setup script files in your application directory. If you are using setup script files in the installation directory, replace *applicationDir* with the full pathname to the Prolifics `config` directory, for example, `/usr/prolifics/config/setup.sh`

Note: *If application variables are set in the user's environment for previous versions of JAM or Prolifics, they should be removed so that they do not interfere with the setup for this version.*

6. If a user's terminal type is different from the value of `SMTERM` in the setup script, override that value by adding a line to the `.profile` or `.cshrc` to set `SMTERM` correctly. The line should immediately follow the script invocation. For example:

```
. /usr/prolifics/config/setup.sh
SMTERM=vt100
```

Alternatively, you can merge the appropriate setup script file into `.profile` or `.cshrc`, and modify the value of `SMTERM` as needed.

Overriding other application variables for a given user can be implemented in the same way.

Verify the Installation

After you install and configure the Prolifics client, you should verify that it starts up properly. If Prolifics software is not installed and configured correctly, an appropriate error message is displayed. Depending on the problem, the program might also terminate. Refer to Appendix E for a list of the more common error messages related to system configuration, and how to resolve them.

Client Installation

On a client machine, a correct installation is verified if you can invoke the Prolifics editor.

To verify a UNIX client installation:
Type `prodev` at the command line.

Look at A Sample Application

Before you begin building your applications, you might want to look at the following sample application:

VideoBiz (two-tier application)
Run the following script from your home or working directory (make sure your current directory has write-permissions):

```
$SMBASE/samples/vidstore/vbizunix
```

For more information on VideoBiz, refer to the online *Developer's Guide*.

Post-Installation Notes

The following additional information might be required to configure and run Prolifics software on your system.

Implementing Character-Mode Utilities

Several character-mode specific utilities, `mbedit.cm` (menu bar editor) and `showkey.cm` (key translation utility), are provided in the distributed `util` directory. You may need to use these if you are running Prolifics using character-mode *and* your system does not have Motif installed. To ensure that directions and menu options that reference these utilities can be used and accessed, rename the executables:

1. In the `util` directory, save the Motif versions of the utilities by giving each a new extension to distinguish it from their corresponding character-mode utilities. For example:

   ```
   cp mbedit mbedit.xm
   cp showkey showkey.xm
   ```

2. Copy the character-mode utilities to the utility name having no extension. For example:

   ```
   cp mbedit.cm mbedit
   cp showkey.cm showkey
   ```

Troubleshooting

The information in this section is intended to provide you with additional guidance when you encounter error messages.

License Manager

If the license manager is not able to process the license file, an appropriate error message is displayed. Appendix E lists error messages generated by FLEX*lm* and hints for resolving them.

If the Prolifics license server is not running, its clients will not be able to run.

To determine your Motif version number:

Motif Version Number

From your Motif installation directory, run the following command:

```
strings libXm.a | grep –i version
```

Graph Functionality

Prolifics's graph capabilities rely upon external programs, therefore, it is possible for Prolifics to be working properly except for the business graph component. If you have problems with the graph functionality, check the following:

- Ensure that the `grafcap` file (distributed in the `config` directory) is located in one of the directories pointed to by `SMPATH`.
- Ensure that the files `gdsp` and `swsdrvr` (distributed in the `util` directory) can be found along the search `PATH` for executables (Prolifics must be able to execute these programs).

Online Help and Manuals

Prolifics's online help and manuals are built and displayed with *Dyna*Text by Inso Corporation. To verify that you can access the online documents, run `dtext` (in the `util` directory). You should see a dialog containing a list of documents available through *Dyna*Text. If you have problems accessing the documents:

- Ensure that the Prolifics `util` directory is included in the `PATH` variable.
- Ensure that the `.ebtrc` can be accessed. Do this by either placing a copy of it in your home directory (and each user's home directory) or by having an `EBTRC` variable specification which points to a copy (in the `config` directory).
- Ensure that the contents of the `.ebtrc` file are correct. Since `.ebtrc` relies on the `SMBASE` variable, that must be set and exported.

Adding Panther Documents

If *Dyna*Text was previously installed, you can use your existing *Dyna*Text configuration file (`.ebtrc`) to include the Panther manuals with your existing list of documents.

To include the Panther manuals in an existing DynaText collection:

Add the following to the `COLLECTION` line:

In the `.ebtrc` file: `$SMBASE/docs = Panther`

Web Application Server: UNIX

This chapter contains information for installing the Prolifics web application server. For information about installing Prolifics client software, refer to page 27.

Web Application Server: Pre-Installation for UNIX

To run a Prolifics web application server, an HTTP server must be configured and running on the same system. Prolifics supports some of the industry favorites, such as Netscape's Enterprise Server, and Apache Server.

Prolifics supports CGI, ISAPI, and NSAPI architectures. You can select one according to your preferred configuration.

If you have the Prolifics web application server on the same machine as other Prolifics software, it is recommended that they be installed in the same directory. However, if they are not in the same directory, set `WEBBASE` (in `WEB PARAMETERS` section) to the web application server installation directory.

The Prolifics web application server requires a maximum of 44 MB of disk space.

Preliminary Steps

If you plan to install a Prolifics web application server on UNIX, you must create a user account called `proweb`.

To prepare your UNIX system for installing a web application server:

1. Add a user called `proweb` (this name assignment is required) to the `/etc/passwd` file on the machine on which your HTTP server is running. This creates a user account for the web application server.
2. Create a web home directory for the web application server user account. For example: `/home/proweb`.
3. Set the permissions of `proweb` so that both the Prolifics web application server and the HTTP server can access the files in the web home directory. Follow these steps:
   - Determine the name of the HTTP server user account (for example, `webmast`).
   - Create a permission `group` consisting of the web user account (`proweb`) and the HTTP server user account (`webmast`).
   - Give the group permission to access files in the web home directory (`/home/proweb`). You may need to assign the same permissions to all of the parent directories as well.
4. In your web home directory, create an `ini` subdirectory. Make sure that it has read-write permissions for everyone. Your subdirectory might look like this:

   ```
   /home/proweb/ini
   ```

Web Application Server: Post-Installation for UNIX

For information about installing and setting up Prolifics software, refer to page 30.

After successfully installing Prolifics software and running the setup script, there are several post-installation steps required to start using Prolifics. This section discusses or provides references to licensing, building Prolifics executables, setting up the environment for each of the Prolifics components installed, and post-installation issues and troubleshooting tips.

If you install the web application server on a separate machine from Prolifics client software, you must also install the database drivers on that machine.

Post-Installation Overview

As part of post-installation, you need to perform the following general steps. The details of the steps are provided in the pages that follow.

1. Obtain a permanent license file before the Start-up License file expires (refer to page 33).
2. Create new Prolifics executables if required (refer to page 36).
3. Configure the web server environment (refer to page 45).
4. Verify the web application server installation (refer to page 46).
5. Look at sample applications (refer to page 47).

Configure the Web Application Server Environment

To ensure that your Prolifics application can be viewed on a web browser, complete the following platform-specific steps, most of which were applied as part of the Prolifics setup program. For further information on configuring web applications, refer to the *Web Developer's Guide*.

1. Confirm that the following web application server executables reside in your HTTP server's CGI directory; otherwise, copy them from `$SMBASE/util`.
   - `websetup` (web setup manager)
   - `jwsamp` (sample application executable)
2. Confirm that the following web application server files reside in the document root directory (consult your system administrator for the correct name) used by your HTTP server; otherwise, copy them from `$SMBASE/notes`.
   - `*.htm` (configuration HTML files)
   - `*.gif` (graphics files)
3. Confirm that the following initialization file resides in the Prolifics web initialization directory (`/home/proweb/ini`); otherwise, copy it from `$SMBASE/config`.
   - `jwsamp.ini`
4. Check `jwsamp.ini` in the Prolifics web initialization directory (`/home/proweb/ini`) for the correct setting of the following variables:
   - `AppDirectory` — Full pathname to the Prolifics `samples` subdirectory to provide initialization information for the sample web application.
   - `Dispatcher` — Full pathname of the `dispatcher` program in the `util` subdirectory of the installation directory.

- `Server` — Full pathname of the `jserver` program in the `util` subdirectory of the installation directory.
- `SMBASE` — Full pathname of the Prolifics installation directory.
- `PATH` — Full pathname to the `util` subdirectory of the installation directory.

Determine File Locations

Determine the following:

- The location of your HTTP server's program directory, such as `/usr/web/cgi-bin`. Make a note of this for later reference:

  ```
  The server's program directory is installed at:
  ```

  _____

- That the Prolifics Web Setup Manager is installed on your HTTP server and ready to run via a web browser. The default URL location is: `http://`*serverName*`/`*program_directory*`/websetup`. Make a note of its location for later reference:

  ```
  The Setup Manager is accessed from the following URL:
  ```

  _____

Creating Your Web Application

The Prolifics Web Setup Manager guides you through configuring your customized web application. For more information, refer to the *Web Developer's Guide*.

To run the Web Setup Manager, enter the URL recorded above into a web browser.

Verify the Installation

After you install and configure the Prolifics web application server, you should verify that it starts up properly on the web application server machine.

Web Application Server Installation

On the Prolifics web application server machine, verify the installation by running the Prolifics Gallery, and verify the configuration by running your own application.

To verify the Prolifics web application server installation:
Run the Prolifics Gallery:

- Start the Gallery application by typing the following on the command line in the Prolifics `util` directory:

  ```
  monitor -start jwsamp
  ```

- Run the Gallery by entering the following URL in your browser:

  `http://`*serverName*`/`*program_directory*`/jwsamp/main`

To verify your web application server configuration (and licensing):

- Configure a new application by running the Web Setup Manager.
- Start the application by typing the following on the command line in the Prolifics `util` directory:

  `monitor -start` *applicationName*

- Run the application in your browser:

  `http://`*serverName*`/`*program_directory*`/`*applicationName*

If you get the message “No Service Requested!” you were successful.

Look at Samples

Before you begin building your applications, you might want to look at the following sample applications:

QuickStart
QuickStart provides step-by-step instructions on building and deploying sample applications on the web.

From your web browser, access the following URL:

`http://`*serverName*`/qstart.htm`

Prolifics Gallery (web application)
Provides several pre-built sample applications for the web. These applications may be accessed to verify the web server installation.

- Start the Gallery application by typing the following on the command line in the Prolifics `util` directory:

  `monitor -start jwsamp`

- Run the Gallery by entering the following URL in your browser:

  `http://`*serverName*`/`*program_directory*`/jwsamp/main`

  For example:

  `http://myServer/cgi-bin/jwsamp/main`

Notes for Microsoft Windows

The information in this appendix provides troubleshooting notes for installing and running Prolifics on Microsoft Windows.

DLLs for JPEG Decoding

`WECJLIB.DLL` is a dynamic link library which performs JPEG decoding. There are two versions of the DLL. The version that comes with Prolifics can be freely distributed. An enhanced version, which has added functionality, can be ordered from Express Compression Labs (ECL).

In the version of the DLL provided with Prolifics, images are rendered using ordered dithering. The enhanced version of the DLL supports Hi-Color and Tru-Color display hardware. With such hardware, dithering is not necessary and the best possible picture quality can be achieved. Two-pass color quantization and improved dithering are also supported in the enhanced version, which results in better picture quality on 256-color display devices.

To order single- and multiple-user licenses for the enhanced version of the DLL, email: `ecl@netcom.com`, or write:

Dr. Y. Shan
P.O. Box 367
Caulfield East VIC 3145, Australia

Environment Space

If COMMAND.COM runs out of environment space when you issue a SET command, add the following line to your CONFIG.SYS file:

```
SHELL=C:\COMMAND.COM /E:1000 /P
```

If COMMAND.COM resides on a different drive or directory, modify the line accordingly.

Visual C++ Floating-Point Options

For Microsoft Visual C++ distributions, all the distributed libraries created in the current version of Prolifics are compiled with the /FPc switch, so that you can choose at link time which floating-point library to use. You can use either the math coprocessor library (LLIBC7.LIB), the emulator library (LLIBCE.LIB, the default), or the alternate math library (LLIBCA.LIB).

Using Prolifics Utilities

Because of various limitations of Windows, it can be challenging to use Prolifics's utilities when launched from the Program Manager or the Start menu. The problem arises because Windows's notion of the current directory is hidden from the user.

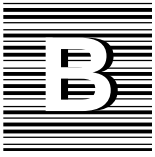
By default, all Prolifics's utilities are designed to be run from the DOS command line, with the following exceptions: binherit.exe, f2asc.exe. clnt2svr.exe, and isqlw.exe (refer to the Note below). In the DOS environment, there is a current directory, and when the utilities run they operate on files in that directory by default. Under Windows, however, the current directory is usually set to the directory holding the executable, for example, c:\prolific\util.

Therefore, if you launch a utility, such as f2asc, from the Program Manager or the Start menu and type -a foo.asc foo.pro in the Parameters window, f2asc looks for foo.pro in the util directory and creates its output foo.asc there as well. Since this is usually not what you want, consider one of the following approaches:

- Enter full paths in the parameters window, for example, -a d:\myproj\foo.asc d:\myproj\foo.pro.
- Edit the .PIF files to set the directory elsewhere than the util directory.

- Run the utilities from DOS.

Note: *The utilities listed are distributed as Microsoft C QuickWin applications. If you are interested in the behavior of QuickWin applications, refer to the QuickWin chapter in the Programming Techniques manual that comes with Visual C/C++.*



Initialization and Databases

The installation procedure for Windows automatically modifies `PROL4W32.INI` to work with your database driver or drivers. The settings corresponding to your database and version are added to the Prolifics initialization file.

For Windows 95/98 and Windows NT:

Database and Version	Settings

Microsoft Open Database Connectivity (ODBC) Version 2	`[databases]`
	`installed=odbc`
	`[dbms odbc]`
	`driver=odb2dm32.dll`
	`model=tmodb132.dll`

Microsoft Open Database Connectivity (ODBC) Version3	`[databases]`
	`installed=odbc`
	`[dbms odbc]`
	`driver=odb3dm32.dll`
	`model=tmodb132.dll`

Microsoft SQL Server Version 6	`[databases]`
	`installed=sqlsrvr`
	`[dbms sqlsrvr]`
	`driver=mssdm32.dll`
	`model=tmmss132.dll`

Database and Version	Settings
Sybase Version 10 using DB-Library	[databases] installed=sybase [dbms sybase] driver=db10dm32.dll model=tmsyb132.dll
Sybase Version 10 using CT-Library	[databases] installed=sybase [dbms sybase] driver=ct10dm32.dll model=tmsyb132.dll
Sybase Version 11 using DB-Library	[databases] installed=sybase [dbms sybase] driver=db11dm32.dll model=tmsyb132.dll
Sybase Version 11 using CT-Library	[databases] installed=sybase [dbms sybase] driver=ct11dm32.dll model=tmsyb132.dll

For Windows 95/98:

Database and Version	Settings
Informix Version 7.20.TDI	[databases] installed=informix [dbms informix] driver=inf7dm32.dll model=tminf132.dll
Oracle Version 7–7.2 using OCI	[databases] installed=oracle [dbms oracle] driver=ora7dm32.dll model=tmora132.dll
Oracle Version 7–7.2 using Pro*C	[databases] installed=oracle [dbms oracle] driver=emb7dm32.dll model=tmora132.dll
Oracle Version 7.3 using OCI	[databases] installed=oracle [dbms oracle] driver=or73dm32.dll model=tmora132.dll

Database and Version	Settings
Oracle Version 7.3 using Pro*C	[databases] installed=oracle [dbms oracle] driver=em73dm32.dll model=tmora132.dll
Oracle Version 8 using OCI	[databases] installed=oracle [dbms oracle] driver=ora8dm32.dll model=tmora132.dll
Oracle Version 8 using Pro*C	[databases] installed=oracle [dbms oracle] driver=emb8dm32.dll model=tmora132.dll

For Windows NT:

Database and version	Settings
Informix Version 7.10	[databases] installed=informix [dbms informix] driver=inf7dmnt.dll model=tminf132.dll
Informix Version 7.20TE1 or higher	[databases] installed=informix [dbms informix] driver=inf7dmn4.dll model=tminf132.dll
Oracle Version 7.3 using OCI	[databases] installed=oracle [dbms oracle] driver=ora7dmnt.dll model=tmoral132.dll
Oracle Version 7.3 using Pro*C	[databases] installed=oracle [dbms oracle] driver=emb7dmnt.dll model=tmora132.dll

Database and version	Settings
Oracle Version 8 using OCI	[databases] installed=oracle [dbms oracle] driver=ora8dmnt.dll model=tmoral132.dll
Oracle Version 8 using Pro*C	[databases] installed=oracle [dbms oracle] driver=emb8dmnt.dll model=tmora132.dll

License Administration

This appendix provides background information on licensing in Prolifics. To manage Prolifics usage, the Flexible License Manager (FLEX*lm*), a product of Globetrotter Software, Inc., is used. FLEX*lm* Version 5.0 is installed with Prolifics as part of the installation process only on server machines.

The appendix describes the license options file and the following FLEX*lm* license administration utilities provided with Prolifics.

- `lmcksum` — Performs a checksum of a license file.
- `lmdiag` — Diagnoses licensing problems.
- `lmdown` — Gracefully shuts down the license daemons on all nodes.
- `lmgrd` — Starts the license manager daemon.
- `lmhostid` — Prints the correct hostid value on any machine supported by FLEX*lm*.
- `lmremove` — Removes a single user's license for a specified feature.
- `lmreread` — Causes the license daemon to reread the license file and start any new vendor daemons that have been added.

- `lmstat` — Monitors the status of all licensing activity.
- `lmswitchr` — Switches the log file for the specified feature.
- `lmver` — Reports the FLEX*lm* version of a library or binary.

Licensing in Prolifics

Prolifics components use local or remote licensing schemes and are defined as follows:

- Local licensing is when the license file for the application resides on the same machine as the Prolifics component being used.
- Remote licensing is when the license file for the application resides on a different machine from the Prolifics component being used.

The setup program recommends a default licensing scheme for each Prolifics component. If you accept the default, the setup program guides you through the appropriate steps to obtain a permanent license file. You can choose a different scheme if your license administrator recommends it. In this case, the setup program requests contact information, and the Prolifics License Desk will contact you or your license administrator to arrange for licensing. Default license schemes are:

Component name	Platforms	Licensing scheme
Prolifics client	UNIX	Local
Prolifics web application server	UNIX Windows NT	Local Local

License Daemons and License Types

The license daemons are programs that manage the license types that allow limited access to users. License daemons are only required for node-locked counted and floating licenses. Thus, only the Prolifics development client requires daemons, and the license daemons always run on the license host machine.

The license type and number used at your site was determined when Prolifics was purchased.

Types of Daemons

The two types of daemons are:

- License daemon (`lmgrd`) — Manages the license file and starts the vendor daemon `prold`. Only one license daemon can be active for a given license

file. However, there might be other license daemons managing other license files. `lmgrd` runs on the license host.

- Vendor daemon (`prold`) — Works with `lmgrd` to dispense tokens. Each feature of a floating (development client) license has a limited number of tokens.

License Types

Two types of licenses are available with Prolifics; each type is specific to the component installed:

- A Prolifics web application server uses a license type that allows for an unlimited number of application servers to run on a specific computer. The license does not require a license daemon. This type of license is referred to as *node-locked uncounted*.

- Prolifics UNIX clients use *floating* licenses. This type of license is not associated with a particular machine, but is assigned by the license server to each Prolifics development client when the executable is run. This license type requires a license daemon.

  Note: *Because a floating license is associated with the Prolifics development executable, and not with an actual machine, it is possible for a developer to use more than one license. For example, if a developer is running two Prolifics sessions simultaneously on one machine, the license manager assigns two licenses, not one.*

Options File

The daemon options file allows you to customize Prolifics license usage at your site. The information in the file can specify such information as:

- Which users or groups of users can use Prolifics.

- Which messages will be included in the log file.

- How long a copy of Prolifics will remain idle before timing out.

There is no default location or name for the options file. If used, its name appears as the fourth argument on the `DAEMON` line of the license file `license.dat`, in the optional field *options–file*. If there are multiple `DAEMON` lines in the `license.dat` file, then there can be multiple options files, one for each `DAEMON` line. Not all of the lines in an options file refer to a feature, so the site administrator must set up separate options files in order to use the `NOLOG` and `REPORTLOG` features.

Contents of the Options File

The options file has the following basic format:

{INCLUDE|EXCLUDE} *feature* {USER|HOST|DISPLAY|GROUP} *name*
NOLOG {IN|OUT|DENIED|QUEUED}
GROUP *group–name member–list*
LINGER *feature checkout-time*
REPORTLOG *filename*
RESERVE *numlic feature* {USER|HOST|DISPLAY|GROUP} *name*
TIMEOUT *feature idletime*

Lines beginning with a pound sign (#) indicate comments and are ignored.

INCLUDE/EXCLUDE

INCLUDE and EXCLUDE specify which users (or hosts, displays, or groups) are allowed to use a particular feature. Any user who is EXCLUDEd from a feature is not able to use that feature. Specifying an INCLUDE line has the effect of excluding everyone else from that feature; thus, only those users specifically INCLUDEd are able to use that feature. The INCLUDE|EXCLUDE line has the following format:

{INCLUDE|EXCLUDE} *feature* {USER|HOST|DISPLAY|GROUP} *name*

NOLOG

NOLOG causes messages of the specified type to be filtered out of the daemon's log file. Specifying a NOLOG option reduces the amount of output to the log file, which can be useful in those cases where the log file grows too quickly. The NOLOG line has the following format:

NOLOG {IN|OUT|DENIED|QUEUED}

GROUP

GROUP defines collections of users, which can then be used in RESERVE, INCLUDE, or EXCLUDE commands. The GROUP line has the following format:

GROUP *group–name member–list*

LINGER

LINGER prevents the license manager from taking back a license until the indicated *checkout-time* has expired, regardless of whether or not the license token is being used. The LINGER line has the following format:

LINGER *feature checkout-time*

REPORTLOG

REPORTLOG creates a log file suitable for use with the FLEX*lm* report writing tools. This log file maintains more detailed information than the standard log file,

but is not meant to be human readable. If the filename starts with a plus character (+), the file will be opened in append mode. The `REPORTLOG` line has the following format:

`REPORTLOG` *filename*

RESERVE

`RESERVE` reserves the specified number of licenses for the specified user, host, display, or group. Reserving a license decreases the number of generally available licenses. The `RESERVE` line has the following format:

`RESERVE` *numlic feature* {`USER`|`HOST`|`DISPLAY`|`GROUP`} *name*

TIMEOUT

`TIMEOUT` sets up a minimum idle time after which a user's license is lost if it is not being used. This can prevent users from wasting a license (by keeping it checked out when it is not in use) when someone else wants one. The `TIMEOUT` line has the following format:

`TIMEOUT` *feature idletime*

Example

The following is an example of an options file:

```
REPORTLOG /usr/adm/gsi.replog
RESERVE compile USER pat
RESERVE compile USER less
RESERVE compile HOST terry
NOLOG QUEUED
```

FLEX*lm* Utilities

The following sections describe the FLEX*lm* utility programs provided with Prolifics. These utilities are located in the distributed `util` directory.

lmcksum

Performs a checksum of a license file

`lmcksum [-k] [-c` *license_file*`]`

`-k`	Force the encryption code checksum to be case-sensitive (in general, `lmcksum` is not case-sensitive) and not prompt for any input.
`-c` *license_file*	Name of license file to checksum. By default `lmcksum` operates on `license.dat` in the current directory. If this switch is not specified, `lmcksum` looks for the environment variable `LM_LICENSE_FILE` If the environment variable is not set, `lmdiag` looks for the file `/usr/local/flexlm/licenses/license.dat`

Description

`lmcksum` prints a line-by-line checksum for the file as well as an overall file checksum. If the license file contains "`lmcksum=nn`" attributes, the bad lines are indicated.

`lmcksum` ignores all fields that do not enter into the encryption code computation; thus the server node name and port number, as well as the daemon pathname and options file names, are not checksummed. In addition `lmcksum` treats non-case sensitive fields correctly (in general, `lmcksum` is not case-sensitive). `lmcksum` takes the `-k` switch to force the encryption code checksum to be case-sensitive.

`lmcksum` takes an optional daemon name; if a name is specified, only license file lines for the selected daemon are used to compute the checksums.

lmdiag

Diagnoses licensing problems

`lmdiag [-c` *license_file*`] [-n] [`*feature*`]`

`-c` *license_file*	Name of license file to diagnose. If this switch is not specified, `lmdiag` looks for the environment variable `LM_LICENSE_FILE`. If the environment variable is not set, `lmdiag` looks for the file `/usr/local/flexlm/licenses/license.dat`
`-n`	Non-interactive mode; `lmdiag` does not prompt for any input. In this mode, extended connection diagnostics are not available.
feature	Diagnose only the specified *feature*.

Description

If no *feature* is specified, `lmdiag` operates on all features in the license file in your path. `lmdiag` first prints information about the license, then attempts to check out each license. If the checkout succeeds, `lmdiag` indicates this. If the checkout fails, `lmdiag` gives you the reason for the failure. If the checkout fails because `lmdiag` cannot connect to the license server, then you have the option of running "extended connection diagnostics."

Extended diagnostics attempt to connect to each port on the license server node, and can detect if the port number in the license file is incorrect. `lmdiag` indicates each port number that is listening, and if it is an `lmgrd` process, `lmdiag` indicates this as well. If `lmdiag` finds the vendor daemon for the *feature* being tested, then it indicates the correct port number for the license file to correct the problem.

lmdown

Takes down license daemons

`lmdown [-c` *license_file*`] [-q]`

`-c` *license_file*	Use the specified *license_file*. If this switch is not specified, `lmdown` looks for the environment variable `LM_LICENSE_FILE` If the environment variable is not set, `lmdown` looks for the file `/usr/local/flexlm/licenses/license.dat`
`-q`	Quiet mode; `lmdown` does not ask for confirmation. If the switch is not specified, `lmdown` asks for confirmation before asking the license daemons to shut down.

Description

`lmdown` sends a message to every license daemon asking it to shut down. The license daemons write out their last messages to the log file, close the file, and exit. All licenses which have been given out by those daemons are rescinded, so that the next time a client program goes to verify its license, it will not be valid.

The end-user system administrator should protect the execution of `lmdown` since shutting down the servers causes loss of licenses.

Note: `lmdown` *can be used only by a "FLEXlm administrator" (i.e., a member of group* `lmadmin` *or, if the* `lmadmin` *group does not exist, a member of group* `0`*).*

lmgrd

Starts up the license manager daemon

`lmgrd [-2] [-b] [-c` *license_file*`] [-d] [-l` *logfile*`] [-p] [-s` *interval*`] [-t` *timeout*`]`

`-2`	Specify V2 startup arguments, in contrast to the `-b` switch. This switch is required if you intend to use the `-p` switch (available in `lmgrd` v2.4 and later).
`-b`	Specify backward compatibility mode. Use this switch if you are running a v2.1 or later `lmgrd` with a v1.5 or earlier vendor daemon. This is the default switch in FLEX*lm* v2.4 and later.
`-c` *license_file*	Use the specified *license_file*. If this switch is not specified, `lmgrd` looks for the environment variable `LM_LICENSE_FILE` If the environment variable is not set, `lmgrd` looks for the file `/usr/local/flexlm/licenses/license.dat`
`-d`	Specify that hostnames which are read from the license file should have the local domain name appended to them before sending to a client. Useful when clients are accessing licenses from another domain. (Available in `lmgrd` v2.4 and later.)
`-l` *logfile*	Specify the output log file to use.
`-p`	Specify that the `lmdown` and `lmremove` utilities can only be run by a license administrator. A license administrator is a member of the `lmadmin` group, or, if the `lmadmin` group does not exist, a member of group `0`. (This is available in `lmgrd` v2.4 and later.)
`-s` *interval*	Specify the logfile timestamp interval, in minutes. Default is 360 minutes.
`-t` *timeout*	Specify the timeout interval, in seconds, during which daemons must complete their connections to each other. Default value is 10 seconds. A larger value might be preferable if the daemons are being run on busy systems or a very heavily loaded network.

Environment

UNIX

Description

`lmgrd` is the main daemon program for the FLEX*lm* distributed license management system. When invoked, it looks for a license file containing all required information about vendors and features.

lmhostid

Prints the correct hostid value on any machine supported by FLEX*lm*

`lmhostid [`*type*`]`

type	The type of the hostid to print. *type* must be one of `long`, `idmodule`, `ether`, or `string`, and is currently used only on HP and SCO systems. On HP, *type* specifies the ID module, the machine id as returned from the `uname` command, or the Ethernet address. The HP default is `long-uname`. On SCO, `long` specifies the pre-3.0 default, which was a 32-bit long int, while `string` specifies a string host, which is the new default.

Description

Output from `lmhostid` is similar to the following:

```
lmhostid - Copyright (C) 1997, Globetrotter Software, Inc.
The FLEXlm host ID of this machine is "1700abcd"
```

lmremove

Removes a user license and returns it to the license pool

`lmremove [-c` *license_file*`] [`*feature*`] [`*user*`] [`*host*`] [`*display*`]`

`-c` *license_file*	Use the specified license file. If this switch is not specified, `lmremove` looks for the environment variable `LM_LICENSE_FILE`. If the environment variable is not set, it looks for the file `/usr/local/flexlm/licenses/license.dat`
feature	Remove only from the specified *feature*.
user	The *user* to be removed.
host	Node from which the *user* is to be removed.

Description

`lmremove` allows the system administrator to remove a single user's license for a specified *feature*. This might be required in the case where the licensed user is running the software on a node that subsequently crashed. This situation can sometimes cause the license to remain unusable. `lmremove` allows the license to be returned to the pool of available licenses.

`lmremove` removes all instances of *user* on node *host* at the specified *display* from usage of *feature*. The end-user system administrator should protect the execution of `lmremove` since removing a user's license can be disruptive.

Note: `lmremove` *can be used only by a "FLEXlm administrator" (i.e., a member of group* `lmadmin` *or, if the* `lmadmin` *group does not exist, a member of group* `0`*).*

lmreread

Tells the license daemon to reread the license file

`lmreread [-c` *license_file*`]`

`-c` *license_file*	Use the specified license file. If this switch is not specified, `lmreread` looks for the environment variable `LM_LICENSE_FILE` If the environment variable is not set, it looks for the file `/usr/local/flexlm/licenses/license.dat`

Description

`lmreread` allows the system administrator to tell the license daemon to reread the license file. This can be useful if the data in the license file has changed; the new data can be loaded into the license daemon without shutting down and restarting it.

`lmreread` uses the license file from the command line (or the default file, if none specified) only to find the license daemon to send it the command to reread the license file. The license daemon always rereads the original file that it loaded. If you need to change the path to the license file, then you must shut down the daemon and restart it with that new license file path.

You cannot use `lmreread` if the `SERVER` node names or port numbers have been changed in the license file. In this case, you must shut down the daemon and restart it in order for those changes to take effect.

`lmreread` does not change any option information specified in an options file. If the new license file specifies a different options file, that information is ignored. If you need to reread the options file, you must shut down the daemon and restart it.

lmstat

Reports status on license manager daemons and feature usage

`lmstat [-a] [-A] [-c` *license_file*`] [-f` *[feature]*`] [-l` *[reg_expression]*`] [-s` *[server]*`] [-S` *[daemon]*`] [-t` *timeout*`]`

`-a`	Display everything.
`-A`	List all active licenses.
`-c` *license_file*	Use the specified license file. If this switch is not specified, `lmstat` looks for the environment variable `LM_LICENSE_FILE`. If the environment variable is not set, `lmstat` looks for the file `/usr/local/flexlm/licenses/license.dat`
`-f` *[feature]*	List all users of the specified features.
`-l` *[reg_expression]*	List all users of the features matching the given regular expression.
`-s` *[server]*	Display the status of the specified server nodes.
`-S` *[daemon]*	List all users of the specified daemon's features.
`-t` *timeout*	Specify the timeout interval, in seconds, during which daemons must complete their connections to each other. Default value is 10 seconds. A larger value might be desirable if the daemons are being run on busy systems or a very heavily loaded network.

Description

`lmstat` provides information about the status of the server nodes, vendor daemons, vendor features, and users of each feature. Information can optionally be qualified by specific server nodes, vendor daemons, or features.

`lmstat` provides:

- Total licenses available for each feature.
- Who is using the license.
- Who is using features served by a specific daemon.

lmswitchr

Switches the FLEX*admin* log file (REPORTLOG) for the specified feature

---

`lmswitchr [`*feature*`] [`*new-file*`]`

feature	Any *feature* this daemon supports.
new-file	New file pathname.

Description

The FLEX*lm* daemons create an ASCII log file on `stdout`. There are several processes in a parent-child hierarchy which share the same file pointer, so this log file cannot be changed after the vendor daemons have been started, since each process has a copy of the current offset, etc.

There is another way to switch the log file output data; however, this involves piping the `stdout` of `lmgrd` to a shell script that appends a file for each line. Instead of the “normal” startup: `% lmgrd > LOG`

Start `lmgrd` this way:

```
% lmgrd -z | sh -c 'while read line; do echo "$line" >> LOG;
done'
```

For more information on the log file, refer to page 60 for a description of REPORTLOG.

lmver

Reports the FLEX*lm* version of a library or binary

`lmver [`*filename*`]`

filename	Use the specified license file. If a filename is not specified, `lmver` looks for the environment variable `LM_LICENSE_FILE` If the environment variable is not set, `lmver` looks for the file `/usr/local/flexlm/licenses/license.dat`

Description

If the filename is specified, the FLEX*lm* version incorporated into this file is displayed; otherwise `lmver` looks for the library file `liblmgr.a` to detect its version.

License File

This appendix describes the basic format and content of the password-enabled license file.

If you already have a license file in place, either from a previous version of JAM or Prolifics, or from another application that uses FLEX*lm*, you can combine license files by inserting the license file information provided by the License Desk.

Contents of the License File

The license file has the following basic format:

```
SERVER sname hostid  port
DAEMON  daemon-name  path
FEATURE product  daemon-name  version  exp_date  number  password\
    ISSUED=date  SN=serial number  HOSTID=hostid  ck=checksum
INCREMENT product daemon-name  version  exp_date  number  password\
    ISSUED=date  SN=serial number  HOSTID=hostid  ck=checksum
```

Note: `FEATURE` *and* `INCREMENT` *lines should not be changed: they contain the license password and other information which, if modified, could prevent Prolifics from running. Also, the host ID of the server on the* `SERVER` *line should not be changed.*

SERVER

Specifies the server on which a license manager can run. License files require a `SERVER` line only for the Prolifics development client. The `SERVER` line has the following format:

`SERVER` *sname hostid port*

sname — Server's name.

hostid — Host ID of the server.

port — TCP/IP port number used by this server.

DAEMON

Specifies the name and location of the license manager vendor daemon for the Prolifics development client. It also provides the location of the Prolifics options file. It has the following format:

`DAEMON` *daemon-name path* [*options_file*]

daemon-name — Name of the daemon; always `prold`.

path — Full path for the daemon.

options_file (optional) — Name and path of the options file allowing you to customize Prolifics license management (Appendix C).

FEATURE

Describes the license for the Prolifics application server or the web application server. It has the following format:

`FEATURE` *product daemon-name version exp_date number password*\
`ISSUED=`*date* `SN=`*serial number* `HOSTID=`*hostid* `ck=`*checksum*

product — Name of the product with which the license is associated, in this case, the appropriate Prolifics executable: `prolifics-web-server`(Prolifics web application server or Jserver), or `prolifics-web-mgr` (dispatcher).

daemon-name — Always `no_daemon`; this indicates that the feature requires no license daemons.

version — Highest version number of *product*; `4` for Prolifics.

exp_date — Expiration date of the license in the form `dd-mmm-yyyy`; normally `01-jan-0000` to indicate that the Prolifics license has no expiration date.

number — Number of licenses allowed under this license agreement: it is always `0` for a node-locked uncounted license.

password — Encrypted alphanumeric string provided by the License Desk. It contains encoded information about your license, such as the type of license and your system configuration.

date — Date issued. The license is not valid before this date.

serial number — Product serial number; more than one feature can share a serial number.

hostid — Hostid of the server. Used only if the feature is to be bound to a particular host, whether its use is counted or not.

checksum — Verifies that the license has been entered correctly by the end-user.

INCREMENT

Describes the license for the Prolifics development client. It has the following format:

```
INCREMENT product daemon-name version exp_date number password\
    ISSUED=date SN=serial number HOSTID=hostid ck=checksum
```

product — Name of the product with which the license is associated, in this case, the appropriate Prolifics executable: `prolifics-web-server`(Prolifics web application server or Jserver), `prolifics-web-mgr`(dispatcher), or `prolifics-client` (UNIX clients).

daemon-name — Name of the daemon; always `prold`.

version — Highest version number of *product*; `4` for Prolifics.

exp_date — Expiration date of the license in the form `dd-mmm-yyyy`; normally `01-jan-0000` to indicate that the Prolifics license has no expiration date.

number — Number of licenses allowed under this license agreement: it is always greater than `0` for a counted license.

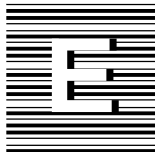
password — Encrypted alphanumeric string provided by the License Desk. It contains encoded information about your license, such as the type of license and your system configuration.

date — Date issued. The license is not valid before this date.

serial number — Product serial number; more than one feature can share a serial number.

hostid — Hostid of the server. Required for a Prolifics web application server and absent for a development client.

checksum — Verifies that the license has been entered correctly by the end-user.



Error Messages

Prolifics Installation Error Messages

A Prolifics installation was not successful if you receive an error message and the program terminates. The following messages describe some of the more common error messages and how to resolve them.

Recurring errors: Occasionally, errors described in this section seem to recur even though the file `smvars` is in order. More often than not, the problem is that the `smvars` file (in the `config` directory), although correct, has not been converted to binary (`smvars.bin`), which is the required format used by Prolifics. If the ASCII version of `smvars` has been edited, be sure to run `var2bin` to convert it to binary format. Otherwise Prolifics is not aware of the changes, and it will seem as though `smvars` was not updated.

`Please enter terminal type or <RETURN> to exit.`

Cause: `SMTERM` is not set (and, under UNIX, `TERM` is also not set) or the value could not be found in `smvars.bin` (left column of `smvars`).

Action: Enter the terminal type, if known, or press Enter to set `SMTERM` correctly. Once the variable is defined, run `prodev` again.

See the left column of the `smvars` file and correct the specification. Use `var2bin` to convert the file to binary. And/Or:

UNIX: Set the variable at the command line.

Windows: Set the variable to `win` in `PROL4W32.INI`.

If you are running in character mode and the screen appears disorganized, with all the text bunched together along with special characters, check the value of `SMTERM`; you probably only need to change its value, but you may also need to create a new video file.

Filename`: No such file or directory`

Cause: The filename in brackets is specified as the value of the `SMVIDEO`, `SMKEY`, `SMMSGS`, or some similar configuration variable in the environment or in `smvars.bin`, but the file could not be found.

Action: Correct the name, and use the full pathname of the file. If you correct it in `smvars`, recompile `smvars` with the `var2bin` utility.

`[`*Variable*`]: Environment variable missing`

Cause: Prolifics could not find an entry for the cited variable in `SMVARS` or in the environment (refer to the following note). This error usually means that you have some variables defined in your environment, but not all that are required, and `SMVARS` is not defined.

> ***Note:*** *Most Prolifics setup variables can be set in the environment, rather than depending on values set in an* `SMVARS`*-defined file. If Prolifics can't find a required variable specification in either the environment or in the* `SMVARS` *file, that variable will be cited as missing. Refer to the Configuration Guide for more details.*

`SMVARS: Bad file format`

Cause: `SMVARS` is set to be the name of an existing file, but it is not a binary `SMVARS` file. The most common incorrect value for `SMVARS` in this case is the path and name of the source `SMVARS` file instead of the binary `SMVARS` file.

Action: Point to the binary file that has the `.bin` extension.

`SMVARS: Environment variable missing`

Cause: `SMBASE` (or `SMVARS`, if you are using one) is not set, or not set properly. Normally, Prolifics looks for `smvars.bin` in the `config` directory under the directory pointed to by `SMBASE`. If `SMBASE` is not set, you must have an `SMVARS` variable to tell Prolifics explicitly where the `SMVARS` file can be found. If `SMBASE` is not set properly, and Prolifics cannot find an `SMVARS` variable, the above message is given.

Action: Correct (or set) the `SMBASE` variable specification, or determine why setting it is not taking effect.

Windows: Check to see that `SMBASE` is being set in `autoexec.bat` and that you have not run out of environment space.

UNIX: Make sure that the variable is exported (via the `export sh/ksh` command or `setenv csh` command).

`SMVARS: No such file or directory`

Cause: `SMVARS` is not set correctly.
Action: Check that the full pathname (including drive letter under Windows) of the file is included and correct.

DLL Messages

The following error messages might occur after a Windows installation and are specific to DLLs required for Prolifics's database drivers and to DLL version mismatches.

Informix-Specific Messages

`Cannot load DLL INF7DM32.DLL`

`Cannot load DLL INF7DMNT.DLL`

`Cannot load DLL INF7DMN4.DLL`

`Cannot load DLL TMINF132.DLL`

Cause: Windows is unable to find the Prolifics database driver DLLs or the Informix software.
Action: Check that the Prolifics `util` directory is on the `PATH`. If you do not wish to use the Prolifics database driver DLLs, edit `PROL4W32.INI` to remove the database name from the `install` entry.

Microsoft SQL Server-Specific Messages

`Cannot load DLL mssdm32.dll`

`Cannot load DLL tmmss132.dll`

Cause: Windows is unable to find the Prolifics database driver DLLs or the Microsoft SQL Server software.
Action: Check that the Prolifics `util` directory is on the `PATH`. If you do not wish to use the Prolifics database driver DLLs, edit `PROL4W32.INI` to remove the database name from the `install` entry.

ODBC-Specific Messages

```
Cannot load DLL odb2dm32.dll
Cannot load DLL odb3dm32.dll
Cannot load DLL tmodb132.dll
```

Cause: Windows is unable to find the Prolifics database driver DLLs or the ODBC software.

Action: Check that the Prolifics `util` directory is on the `PATH`. If you do not wish to use the Prolifics database driver DLLs, edit `PROL4W32.INI` to remove the database name from the `install` entry.

Oracle-Specific Messages

```
Cannot load DLL ora7dm32.dll
Cannot load DLL emb7dm32.dll
Cannot load DLL or73dm32.dll
Cannot load DLL em73dm32.dll
Cannot load DLL ora8dm32.dll
Cannot load DLL emb8dm32.dll
Cannot load DLL ora7dmnt.dll
Cannot load DLL emb7dmnt.dll
Cannot load DLL oxa7dmnt.dll
Cannot load DLL exa7dmnt.dll
Cannot load DLL ora8dmnt.dll
Cannot load DLL emb8dmnt.dll
Cannot load DLL oxa8dmnt.dll
Cannot load DLL exa8dmnt.dll
Cannot load DLL tmora132.dll
```

Cause: Windows is unable to find the Prolifics database driver DLLs or the Oracle software.

Action: Check that the Prolifics `util` directory is on the `PATH`. Verify that Oracle is installed correctly. If you do not wish to use the Prolifics database driver DLLs, edit `PROL4W32.INI` to remove the database name from the `install` entry.

Sybase-Specific Messages

`Cannot load DLL db10dm32.dll`

`Cannot load DLL ct10dm32.dll`

`Cannot load DLL db11dm32.dll`

`Cannot load DLL ct11dm32.dll`

`Cannot load DLL tmsyb132.dll`

Cause: Windows is unable to find the Prolifics database driver DLLs or the Sybase software.

Action: Check that the Prolifics `util` directory is on the `PATH`. If you do not wish to use the Prolifics database driver DLLs, edit `PROL4W32.INI` to remove the database name from the `install` entry.

DLL Version Mismatch Messages

`Application Error: Call to Undefined Dynalink`

Cause: Prolifics is picking up an older version of `cktbl16.dll` from a previous installation.

Action: Check that the current Prolifics `util` directory with the correct `cktbl16.dll` is in the `PATH` or copy `cktbl16.dll` to the Windows directory.

Graph-Related Messages

If graph widgets are not displaying correctly, the following graph-specific errors might be displayed:

`Warning: chart <Begin> failed: -1`

Cause: All graphs are blank indicating that the `gdsp` program (in the `util` directory) was not found in the path. (UNIX only.)

`Warning: missing graph files in $SMPATH`

Cause: All graphs are blank indicating that: the `grafcap` file is invalid or not found in `SMPATH` (UNIX) and the IPT setting in the file `LIBSTI.INI` does not point to the directory that contains the `grafcap` file (Windows).

License Manager Error Messages

In most circumstances, Prolifics license management is transparent to the developer. This section describes the error messages that can be generated from Prolifics and from the underlying license manager software, FLEX*lm*.

Prolifics License-Related Messages

The messages described in this section can appear when the screen editor is invoked.

All License Types

`Prolifics License Manager: Bad date in license file.`

Cause: The date on one of the `FEATURE` or `INCREMENT` lines is not correct.
Action: Verify that the `FEATURE` and `INCREMENT` lines in the license file are correct or contact your system administrator.

`Prolifics License Manager: Bad encryption code in license file.`

Cause: The password on one of the `FEATURE` or `INCREMENT` lines is not correct.
Action: Verify that the `FEATURE` and `INCREMENT` lines in the license file are correct and that none of the backspaces indicating continued lines are followed by a space, or contact your system administrator.

`Prolifics License Manager: Cannot communicate with server. cannot connect to license server ([code,code])`

Cause: Could not connect with the license server.
Action: Make sure the license server daemon `lmgrd` is started in the system specified in the `SERVER` line of the license file, or contact your system administrator. The two codes can help locate the problem.

`Prolifics License Manager: Cannot connect daemon prold with license server.`

Cause: There is no `DAEMON` line in the license file for `prold`.
Action: Verify that the license file entry is correct or contact your system administrator.

`Prolifics License Manager: Cannot find license file.`

Cause: The license manager is unable to find the license file.
Action: Make sure `LM_LICENSE_FILE` in your initialization file or environment points to the correct license file and that it is readable.

`Prolifics License Manager: Cannot read license file`

Cause: The license manager could not read the license file because of a permissions or access problem.
Action: Correct the problem or contact your system administrator.

`Prolifics License Manager: ERROR #[code] , [message]`

Cause: An unexpected error occurred in the license manager.
Action: Contact your system administrator.

`Prolifics License Manager: [product] feature does not exist.`

Cause: There is no `FEATURE` or `INCREMENT` line in the license file for [product].
Action: Verify that the `FEATURE` or `INCREMENT` lines in the license file are correct, obtain a new license file, or contact your system administrator.

`Prolifics License Manager: Feature [product], Version [version] has expired.`

Cause: The expiration date in the license file of [product] has been reached.
Action: Obtain a new license file or contact your system administrator.

`Prolifics License Manager: Initialization failed.`

Cause: Problems in the license file.
Action: Contact your system administrator.

`Prolifics License Manager: Invalid data received from license server.`

Cause: The license server did not respond to a request or the response was invalid.
Action: Contact your system administrator.

`Prolifics License Manager: Invalid license file syntax.`

Cause: A feature name, daemon name, or server name is too long or a `FEATURE` or `INCREMENT` line specifies no hostid, or the number of licenses is not greater than zero.
Action: Verify that the license file entry is correct or contact your system administrator.

`Prolifics License Manager: malloc() call failed`

Cause: License manager could not allocate memory that it needed. The most likely cause is that the program's heap has been corrupted.
Action: Contact your system administrator.

`Prolifics License Manager: Network software (TCP/IP) not available.`

Cause: Could not communicate with the license manager because network software is not present or is incorrectly configured.
Action: Contact your system administrator.

`Prolifics License Manager: Platform not enabled.`

Cause: Should not happen. Indicates that license daemon `prold` is not licensed to run on your platform.
Action: Contact your system administrator.

`Prolifics License Manager: Server does not support feature [product].`

Cause: The feature [product] does not have a `FEATURE` or `INCREMENT` line in the license file.
Action: Verify that the license file entry is correct, obtain a new license file, or contact your system administrator.

`Prolifics License Manager: Time zone offset from GMT more than 24 hours`

Action: Fix the TZ environment variable or contact your system administrator.

```
Prolifics License Manager: Unknown vendor key type
```

Cause: Program's object file is corrupt.
Action: Contact your system administrator.

Floating Licenses

```
Prolifics License Manager: All [product] licenses are
currently in use.
```

Cause: All available licenses for [product] are in use. If your license request has been queued, you get a series of messages showing who has the licenses reserved or how many licenses are in use.
Action: Try again later or contact your system administrator.

```
Prolifics License Manager: Cannot communicate with license
server or your [product] license was obtained by another user
when the license server was restarted.
```

Cause: Occurs when you select an item from the New or Open menu options; indicates that the license server has been taken down. If the license server was then restarted, another user got the license for the [product] you were using.
Action: You can continue editing and can save any screens that are currently open in the editor but must restart Prolifics (`prodev`) before you can pick any New and Open menu options.

```
Prolifics License Manager: FLEXlm key data bad.
```

Cause: Program's object file is corrupt.
Action: Contact your system administrator.

```
Prolifics License Manager: Bad server hostname in license
file.
```

Cause: Server named on a `SERVER` line could not be found.
Action: Obtain a new license file or contact your system administrator.

```
Prolifics License Manager: No SERVER lines in license file.
```

Cause: The license file cannot be used because there are no `SERVER` lines for a counted feature.
Action: Verify that the license file entry is correct, obtain a new license file, or contact your system administrator.

```
Prolifics License Manager: Version [version] not supported on
server.
```

Cause: The version [version] of the program being run is greater than that supported by the license file.
Action: Obtain a new license file or contact your system administrator.

Node-locked Licenses

The following Prolifics startup error information is specific to node-locked licenses.

```
Prolifics License Manager: Cannot find ethernet device.
```

Cause: On most systems, the license manager must locate an ethernet board to verify the password on the `FEATURE` or `INCREMENT` lines.
Action: Contact your system administrator.

```
Prolifics License Manager: [product] not authorized for this
computer.
```

Cause: [product] is not licensed to run on the current computer.
Action: Contact your system administrator.

```
Prolifics License Manager: Version [version] not supported.
```

Cause: The version [*version*] of the program being run is greater than that supported by the license file.
Action: Obtain a new license file or contact your system administrator.

Create License Utility

The following error information is specific to the `create_license` utility.

```
No license files (.lic) were detected.
```

Cause: Could not detect any license files (`.lic`) in the current directory.
Action: Check the filenames of the license files in `$SMBASE/licenses`. Your license files should have one of the following names: `proserv.lic` (Prolifics application server), `prodev.lic` (development client), `proweb.lic` (web application server).

```
Unable to create license.dat
```

Cause: Encountered an error when trying to create the `license.dat` file.
Action: Check file permissions and disk space to allow the `create_license` utility to write to disk.

```
Inconsistent DAEMON lines.
```

Cause: Two license files (`.lic`) have `DAEMON` lines, but they are inconsistent with each other. Since the resulting `license.dat` file and the vendor daemon (`prold`) are for a single machine, any `DAEMON` lines among license files should be the same.
Action: Check the license files with `DAEMON` lines for typographical errors.

```
Inconsistent SERVER lines.
```

Cause: Two license files (`.lic`) have `SERVER` lines, but they are inconsistent with each other. Since the resulting `license.dat` file is meant for one server machine, any `SERVER` lines among license files should be the same.
Action: Check the license files with `SERVER` lines for typographical errors.

FLEX*lm* Informational Messages

The following messages are generated by FLEX*lm* license management software, and are provided courtesy of the *FLEXlm Programmer's Guide*.

`Connected to` *node*

Cause: This daemon is connected to its peer on *node*.

`CONNECTED, master is` *name*

Cause: License daemon logs this message when a quorum is achieved and everyone has selected a master.

`DENIED:` *N feature* `to` *user* (*mm/dd/yy hh:mm*)

Cause: *user* was denied access to *N* licenses of *feature*.

`EXITING DUE TO SIGNAL` *nnn*

`EXITING WITH CODE` *nnn*

Cause: An interrupt signal has been intercepted. All daemons list the reason that the daemon has exited.

`EXPIRED:` *feature*

Cause: *feature* has passed its expiration date.

`IN:` *feature* `by` *user* (*N* `licenses) (used:` *d:hh:mm:ss*)

Cause: *user* at *d:hh:mm:ss*.

`IN server died:` *feature* `by` *user* (*N* `licenses) (used:` *d:hh:mm:ss*)

Cause: *user* has checked in *N* licenses of *feature* by virtue of the fact that his server died.

`License Manager server started`

Cause: License daemon has been started.

`Lost connection to` *host*

Cause: A daemon can no longer communicate with its peer on node *host*, which can cause the clients to have to reconnect, or cause the number of daemons to go below the minimum number, in which case clients may start exiting. If license daemons lose the connection to the master, they will kill all vendor daemons; vendor daemons will shut themselves down.

`Lost quorum`

Cause: Not enough servers to satisfy quorum number. The daemon will process only connection requests from other daemons.

Action: Check network connection between servers.

`MASTER SERVER died due to signal` *nnn*

Cause: License daemon received fatal signal *nnn*.

`MULTIPLE` *xxx* `servers running.`
`Please kill, and restart license daemon`

Cause: License daemon has detected that multiple copies of vendor daemon *xxx* are running.
Action: Kill all *xxx* daemon processes and restart the license daemon.

`OUT: feature` *feature* `by` *user* `(`*N* `licenses) (used:` *d:hh:mm:ss*`)`

Cause: *user* has checked out *N* licenses of *feature* at *d:hh:mm:ss*.

`Removing clients of children`

Cause: Top-level daemon logs this message when one of the child daemons dies.

`RESERVE` *feature* `for HOST` *name*
`RESERVE` *feature* `for USER` *name*

Cause: A license of *feature* is reserved for either user *name* or host *name*.
Action: None.

`Restarted` *xxx* `(internet port` *nnn*`)`

Cause: Vendor daemon *xxx* was restarted at internet port *nnn*.

`Retrying socket bind (address in use)`

Cause: The license server tries to bind sockets for approximately 6 minutes if it detects `address in use` errors.
Action: Check for multiple `lmgrd`s using the same TCP port number.

`Selected (EXISTING) master` *node*

Cause: This license daemon has selected an existing master (*node*) as the master.

`SERVER shutdown requested`

Cause: Daemon received shutdown request from a user-generated kill command.

`[NEW] Server started for:` *feature-list*

Cause: A (possibly new) server was started for the features listed.

`Shutting down` *xxx*

Cause: The license daemon is shutting down the vendor daemon *xxx*.

`SIGCHLD received. Killing child servers.`

Cause: Vendor daemon logs this message when a shutdown is requested by the license daemon.

`Started` *name*

Cause: License daemon logs this message whenever it starts a new vendor daemon.

`Trying connection to` *node*

Cause: Daemon is attempting a connection to *node*.

FLEXlm Configuration Problem Messages

hostname`: Not a valid server host, exiting`

Cause: This daemon was run on an invalid hostname.
Action: Run `lmgrd` on the host(s) specified in the `SERVER` lines.

hostname`: Wrong hostid, exiting`

Cause: Hostid is wrong for *hostname*.
Action: Check the license file and ensure the hostnames match the hostids.

`BAD CODE for` *feature-name*

Cause: Specified feature name has a bad encryption code.
Action: Check the password received from Prolifics.

`CANNOT OPEN options file` *file*

Cause: Options file specified in the license file could not be opened.
Action: Check the path for the options file on the `DAEMON` line in the license file.

`Couldn't find a master`

Cause: Daemons could not agree on a master.
Action: Kill and then restart `lmgrd` on servers.

`license daemon: lost all connections`

Cause: Indicates all the connections to a server are lost, which often indicates a network problem.
Action: Check the network and restart the daemons.

`lm_server: lost all connections`

Cause: All the connections to a server are lost; probably indicates a network problem.

`lost lock, exiting`

Cause: Error closing lock file.

`NO DAEMON line for` *daemon*

Cause: License file does not contain a `DAEMON` line for *daemon*.
Action: Add `DAEMON` line for *daemon* in the license file.

`NO DAEMON line for` *name*

Cause: Vendor daemon logs this error if it cannot find its own `DAEMON` name in the license file.
Action: Edit license file.

`NO DAEMON lines, exiting`

Cause: License daemon logs this message if there are no `DAEMON` lines in the license file; with no vendor daemons to start, there is nothing to do.
Action: Edit license file.

`No features to serve!`

Cause: Vendor daemon found no features to serve. This could be caused by bad data in the license file.
Action: Inspect the license file for bad data.

`No license data for` *feature*`, feature unsupported`

Cause: No feature line for *feature* in the license file.
Action: Edit the license file.

`Unable to re-open lock file`

Cause: Vendor daemon has a problem with its lock file, usually because of an attempt to run more than one copy of the daemon on a single node.
Action: Locate the other daemon that is running via a `ps` command, and kill it with `kill -9`.

`Unknown host:` *hostname*

Cause: *hostname* specified on a `SERVER` line in the license file does not exist in your host's database.
Action: Check with your system administrator for the correct hostname. FLEX*lm* uses standard network services to find the host: Domain Name Server (DNS), Network Information Services (NIS or YP) or in `/etc/hosts`.

`UNSUPPORTED FEATURE request:` *feature* `by` *user*

Cause: *user* has requested a feature that this vendor daemon does not support. This can happen for a number of reasons: the license file is bad, the feature has expired, or the daemon is accessing the wrong license file.

Daemon Software Error Messages

`ATTEMPT TO START VENDOR DAEMON` *xxx* `with NO MASTER`

Cause: Vendor daemon was started with no master selected. This is an internal consistency error in the daemons.
Action: Report error to Prolifics technical support.

`BAD PID message from nnn: xxx (msg)`

Cause: Top-level vendor daemon received an invalid PID message from one of its children (daemon number *xxx*).

`BAD SCONNECT message: (message)`

Cause: An invalid `server connect` message was received.

`Cannot create pipes for server communication`

Cause: The `pipe` system call failed.
Action: Report error to Prolifics technical support.

`Can't allocate server table space`

Cause: A malloc error.
Action: Check swap space

`Connection to node TIMED OUT`

Cause: Daemon could not connect to *node*.
Action: Check the network.

`Error sending PID to master server`

Cause: Vendor server could not send its PID to the top-level server in the hierarchy.
Action: Report error to Prolifics technical support.

`f-do-notify called with no valid feature`

Cause: Internal inconsistency error.
Action: Report error to Prolifics technical support.

`Illegal connection request to DAEMON`

Cause: A connection request was made to *DAEMON*, but this vendor daemon is not *DAEMON*.
Action: Report error to Prolifics technical support.

`Illegal server connection request`

Cause: A connection request came in from another server without a `DAEMON` name.
Action: Report error to Prolifics technical support.

`KILL of child failed, errno = nnn`

Cause: A daemon could not kill its child.
Action: Get PID of daemon and kill with `kill -9`.

`No internet port number specified`

Cause: Vendor daemon was started without an Internet port.
Action: Specify an Internet port on the `SERVER` line.

`Not enough descriptors to re-create pipes`

Cause: Top-level daemon detected the death of one of its sub-daemons. In trying to restart the chain of sub-daemons, it was unable to get the file descriptors to set up the pipes to communicate.
Action: This is a fatal error. The daemons must be restarted.

`read: error message`

Cause: An error in a `read` system call was detected.

`recycle_control BUT WE DIDN'T HAVE CONTROL`

Cause: The hierarchy of vendor daemons has become confused over who holds the control token. This is an internal error.

`return_reserved: can't find feature listhead`

Cause: When a daemon is returning a reservation to the free reservation list, it could not find the listhead of features.

`select: message`

Cause: An error in a `select` system call was detected.
Action: Report error to Prolifics technical support.

`Server exiting`

Cause: Server is exiting; normally due to an error.
Action: Report error to Prolifics technical support.

`SHELLO for wrong DAEMON`

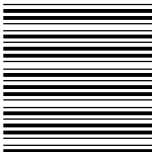
Cause: Vendor daemon was sent a `server hello` message that was destined for a different `DAEMON`.

`Unsolicited msg from parent!`

Cause: Normally, the top-level vendor daemon sends no unsolicited messages. If one arrives, this message is logged. This is a bug.
Action: Report error to Prolifics technical support.

```
WARNING: CORRUPTED options list (o->next == 0)
Options list TERMINATED at bad entry
```

Cause: Internal inconsistency was detected in the daemon's option list.
Action: Report error to Prolifics technical support.



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